SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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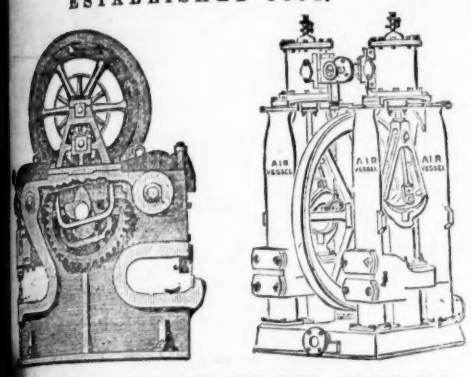

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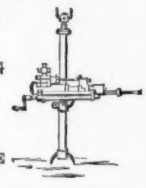

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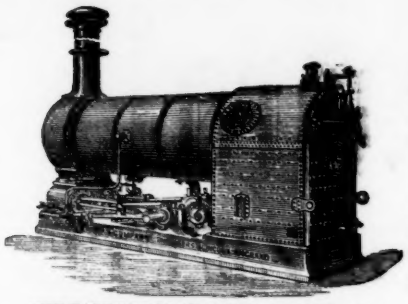

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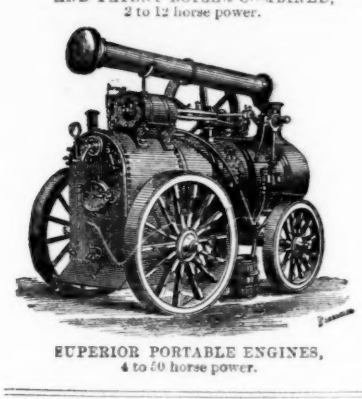

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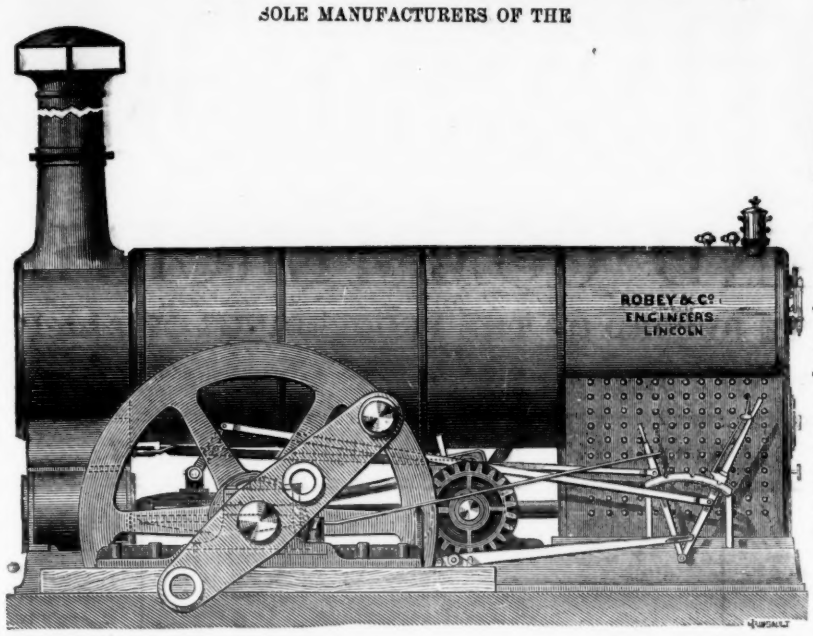

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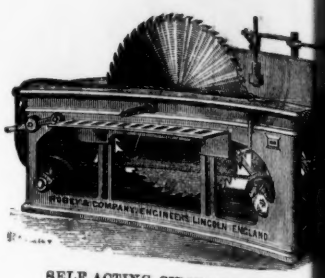

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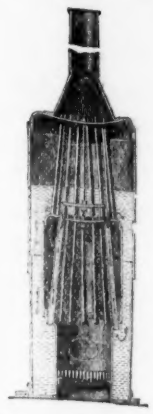

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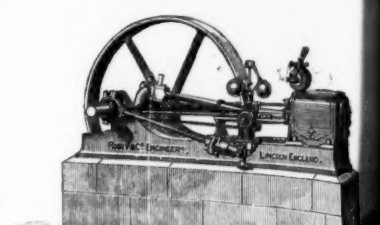

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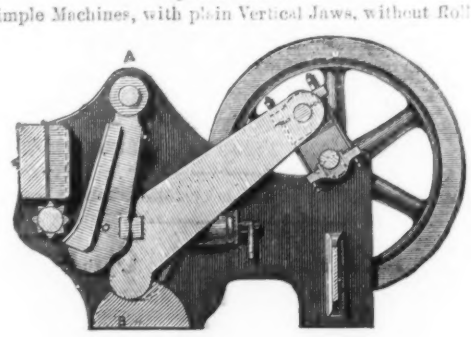

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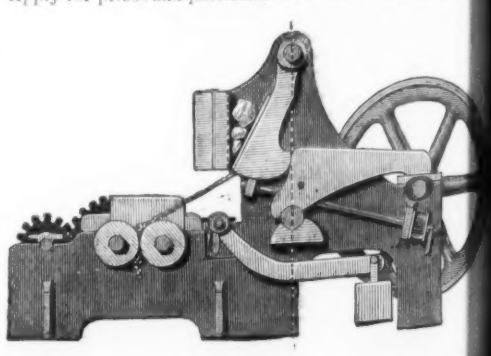

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LIGNITES.

Much as has been written with respect to coal, its growth, nature, and discovery by writers both ancient and modern, very little has been made known to us with regard to what may be called its transitional state from wood growing in vast forests in so many parts of the world, through its various stages, until it became our fossil fuel. It is quite probable that before coal was known to any extent—at least, as we now find it—wood partially fossilised was known and made use of. One of the earliest records we have in which fuel dug out of the earth is noticed is that written by THEOPHRASTUS, a Greek, who lived about 240 years before CHRIST, and who describes the source, uses, and nature of coal, whilst he also refers to other combustible material, the nature of which cannot be defined, owing to the vague language in which it is referred to. Since that period many English and other writers have given notices, fragmentary and otherwise, relating to coal and the material of which it is composed, the most important of late years being the full and exhaustive work of Mr. HULL, entitled "The Coal Fields of Great Britain," but which also includes interesting particulars as to the known coal fields in all parts of the world, and which for accuracy and elaborateness of detail leaves nothing to be desired. It is singular to say, whilst so much has been written about coal, its formation, characteristics, &c., no notice appears to have been taken of certain fossils which in most respects bear a close resemblance to coal itself, and containing most of the essential and valuable properties of that mineral. For some years there has been considerable difficulty in defining whether all minerals producing gas, for burning and producing heat are coal. This was the case in the great Edinburgh trial in 1853, when the question to be decided was whether a mineral rich in oil was coal or not. There were the ablest men of science on both sides, who of course contradicted each other, and the learned Judge said—"To find a scientific definition of coal for what has come to light within the last five days is out of the question." Then we have shales that produce oil and gas, whilst in the South of England, in Dorsetshire, we have the Kimmeridge coal, far removed from any coal field, which has been extensively worked for the purpose of extracting gas, 9050 cubic feet of which are produced from a ton of the shale or clay. In the Isle of Purbeck, which may be termed its typical locality, it appears as a laminated coal passing into bituminous shale, being imperfectly combustible. From the shale both paraffin and tar, oil, stearine, as well as alum, have been obtained. The beds are in the upper oolites, between the Portland oolites and sand and the calcareous grit. But the nearest approach we have to coal are the lignites, which are particularly rich in oil, and which are a source of extensive manufacture in several parts of Europe, America, &c. They are found in the Tertiary series, the most recent of our formations, in which coal has also been met with. Although the deposits between the latter and the true carboniferous measures must have occupied vast ages to complete, yet the difference between coal and lignite does not appear to be so great as might be expected. This is evident from the several analyses made, from which it is shown that the oxygen in lignite is 21·154 and the hydrogen 0·58 per cent. less than in true coal, thus showing that in the great lapse of time between the carboniferous and tertiary periods the coal experienced a very slight loss of substance. But it is apparent that the most recently formed seams of coal, such as are found in the tertiary system, have been subject to greater losses that the beds in the carboniferous measure did not, as with the former the gases found means to escape, whilst in the deep seams they were pent up at a vast pressure. In another respect there is a striking analogy between lignite and coal *in situ*—that is, that both repose on beds of underclay, penetrated by certain rootlets, and which formed the soil from whence they sprung. Carbon, it may be said, is the great property of coal, and is deficient in wood, whilst there is about 50 per cent. of it in lignite. The following table, however, showing the gradual passage of vegetable matter into coal, will fully bear out the remarks we have made with respect to lignite:—

Carbon of the constant of 100.	Carbon.	Hydrogen.	Oxygen.	Total other than carbons.
Wood	100	12·18	83·07	95·25
Peat	100	9·85	55·67	65·52
Lignite	101	8·37	42·42	50·79
Staffordshire thick coal	100	6·12	21·23	27·35
Newcastle steam coal	100	5·91	18·32	24·23
South Wales coal	100	4·75	5·28	10·03
Ultra anthracite	100	3·48	2·64	6·12
Anthracite	100	2·84	1·74	4·58
Darkest mineral	100	10·25	7·18	17·43
Cannel coal	100	7·82	11·50	18·32

In England it would appear that not much attention has been paid to the lignites, but it may be said that the Miocene strata, which lie between the Pleocene and Eocene formations of the tertiary system, is scarcely met with in the British Islands, according to most of our geologists, although it has been considered identical with beds found in Mull and in Ireland. In Devonshire, also, it would appear to exist, for at Bovey Tracey, in that county, there is a peculiar deposit of lignites. In the county of Tyrone, Ireland, beds of Pleocene clays contain lignite, but we are not aware that it has ever been tested in any way. But whilst but little value is taken of lignite in England such is not the case in other parts of Europe and America. In Saxony the production of mineral oil, including paraffin from the lignites, is now a most important branch of industry, its commencement dating from the year 1855, the results to which analogous products were obtained from bituminous shale from the Seven Mountains as well as what is known as Dighead. The paraffin of Germany made from lignite, the point of fusion which is from 30° to 60° centigrade, is not all consumed in the country, for fully one-half of what is made is sent to England, Russia, France, Italy, and Denmark. In 1873 the value of the oils obtained from lignites in Saxony was nearly 7,000,000 thalers. During the last three or four years, however, the production of oil has greatly increased, as the supply of lignites of a superior quality, and more capable of yielding paraffin than the inferior rock oils. The latter is inferior to those of America, but are almost entirely consumed in the district in which they are extracted. The best of the German lignites we may state are found in the district of Luneburg, and in the neighbourhood of Kalle, Weissenfels, and Halle. In Spain and other parts of Europe there are considerable deposits of lignites, but as yet they are not utilised, but there is no reason why they should not be worked up, more especially for local purposes. As we have before stated, lignite bears not only a strong resemblance to coal, but some of it is actually called coal. That brought from the mines of Disco Island by the United States steamer Tigress, in 1873, being called "Greenland coal or lignite," and was used as the same as ordinary fuel.

In our own American possessions fine lignite is found extending over a vast area. In Vancouver Island both the coal and lignite are of tertiary age, thus showing the very close connection that exists between them. In British North America the tertiary lignite formation overlaps the cretaceous deposits west of the Red River, being the lowest known American representative of the tertiary series, the fauna being chiefly fresh water. The coal deposits in the same region contains from the lowest marine to the highest fresh water beds of tertiary age, are, however, looked upon as cretaceous in America, but the ground that a tertiary flora was contemporaneous with a cretaceous fauna, and if so establishing an uninterrupted succession of events across what has generally been regarded as one of the greatest breaks in geological time. On the banks of the Seskatchewan river the lignite group is not only very extensive but valuable, there being three beds of it, the lower one being pure and compact and 9 ft. in thickness. In the United States there appears to be large tracts of land in which there are excellent beds of lignite, as on the banks of the Mississipi, a short distance below Slinere Ferry, we understand it has been used as fuel for the steam-boats, and even in that vast country it is not utilised to the extent that might be expected from the go-ahead character of the people. In Europe, however, the value of the lignites are now known, and no doubt will be more extensively taken advantage of than they have been, more especially in Bohemia, France, Switzerland, and Russia. There is every reason to believe that lignite will be found in several parts of Europe where at present it is unknown, never having been sought for, notwithstanding the very important geological fact that extraordinary changes took place in tertiary times, when there was communication between the Mediterranean and the Indian Ocean, and between the old and new Continents. The distribution of the tertiary strata over Europe we may say is in well-defined areas, and both London and Paris are within the confines of a tertiary area, whilst we have other well-known areas in Europe which were at that epoch beneath the waters of the then sea. Such are the basins of Southern France, Spain, Vienna, Hungary, Italy, &c., where in the sedimentary deposits of all of them there are exhibited successions of clay, sands, limestones, marls, gypsum, and lignite, which in all their essentials are clearly of the same period and formation. Seeing then that in other parts of Europe, besides Germany, in which there are deposits of lignite rich in oil that can be most profitably extracted, there is no reason to our thinking why there should be something like a monopoly of such a valuable trade. Capital invested in it would be more likely to return a good profit then nine-tenths of the concerns that are constantly being brought out by limited companies. It is also to be hoped that the extent of the European area of lignite will be made known to us by those geologists on whom we are dependent for information on such subjects, so that their extent and value may be placed in a classified form.

MANGANIFEROUS IRON ORES OF DEVON AND SOMERSET.

SIR,—Some time ago you published in the Journal several letters from Mr. F. S. Thomas on the Thunderer explosion, in which he stated that the iron ore of Spreycombe, in North Devon, is of higher percentage and better quality than any which has yet been discovered in the whole world, and as this statement has not been publicly challenged I presume it must be universally considered correct. The demand now being very great, and daily increasing for the richer quality manganiferous ore for the manufacture of steel, I would call the attention of manufacturers and capitalists to a rich mineral district between Spreycombe and the Ebbw Vale Company's works on Eyson Hill, Somerset, a distance of about 25 miles, with the lodes continuous throughout, and I would remark that throughout the drivage into the hill on one lode at the latter mine there has been taken out about 200,000 tons of ore, used at present, I have been informed, wholly for the make of steel, and there are several parallel lodes in this run of rock taking a westerly course, some of which are now being worked at Withypool, and opening out good. These lodes are also proved equally rich on Exmoor, but between this and Spreycombe is chiefly virgin ground, as little has yet been done to the lodes, as the cost of carriage has been too great, but the lodes are known to be continuous here, and when the railway now being projected by the Great Western Company to Combmartin is opened through this part, almost any quantity of the richest quality ore can be taken from this district annually, and will also continue to do so for ages. The configuration, hill and dale, will admit of the lodes being worked in so many places above the valleys that thousands of men can be attacking them at the same time, and thus holding the bone and sinew now so much needed, and at the same time we shall not be dependent on Spain or any other country, even during the time of peace or war. I need not here give the particulars at which this ore can be raised and taken to the smelting works, as any mining engineer can supply the estimate, especially when I name that the levels can be driven into the hills in the lode, and in many places from the railway or near to it, and from the other parts can be brought by short distances with tramway, thus giving only a few miles by railway to shipping port, and from thence at low freight to the smelting works. I have no doubt but that this ore can be delivered free, when the railway and other shipping arrangements are completed, at a less cost per ton than is now in many cases paid for freight for much inferior ore that is brought to and used in this country.

From the foregoing statements capitalists will at once see that they have now an opportunity for investment to open out this district, which will give much better returns and profits for all capital put out than is rarely ever got in foreign mining adventures, as well as improving the home trade of the country. I shall be pleased to send further particulars to capitalists on their addressing—

Barnstaple, Devon, Oct. 16. —— M. E.

PREVENTION OF COLLIERY EXPLOSIONS.

SIR,—One more terrible explosion has been added to the list, with more than the usual serious results, causing the death of three brave men attempting to rescue those who first suffered. For a number of years in your colums, and in those of your contemporaries, by leading articles, opinions candidly expressed by Government Inspectors, and in a variety of ways, the abolition of the use of powder and naked lights has been advocated. Still the same thing goes on; explosions and loss of life follow without apparently making any alteration in the system pursued. What is the reason? Several may be advanced. Opposition on the part of the men to any alteration. Diffidence on the part of some managers, the impossibility of others, to carry out what they desire, owing to the interference of others. The want of unanimity on the part of managers to carry out every improvement calculated to save life. Many of your readers will call to mind where alterations have been suggested, remarks made that if their neighbours would only do so and so they would be only to glad to follow, or if I were to do so and so the men would be out on strike. And it has been frequently the case that after an accident certain alterations have been made for the preservation of the men's lives that the latter have refused to accept such alterations. In going through the different colliery districts one cannot fail to be surprised at the great variety of systems pursued, mainly arising from customs, more particularly with regard to the smaller matters of detail, which though small in themselves are of the most vital importance. It will be found that the use of powder can be dispensed with; with others it is used with impunity. In some collieries part lamps and part open lights are used. Again, it is considered absolutely necessary to work with safety-lamps only, permitting at the same time the indiscriminate use of powder, and in each case the collieries shall be identical as to the seam worked.

If ever there was want not filled it is that of a union amongst managers of collieries—not for trade purposes, but for the purpose of arriving at improvements, and to ensure the adoption of one system. The value of combination with regard to the saving of life would be incalculable. The suggestions of such a body should be put into force and carried out with the same power that is wielded in the enforcement of the law. The experience of the past and every-day practical knowledge would from time to time bring forth fruit calculated to work such an alteration which would render considerably less the possibility of accidents. Theories are very good in their way, but until reduced to practice are little use in times of emergency. The knowledge possessed with regard to the cause of explosions may be summed up in a few words. The so-called fire-damp does not become explosive until mixed with a certain proportion of air. It will not ignite even in that state spontaneously, and requires a flame heat to ignite it. It is equally certain that it is impossible at all times to so far ventilate a mine as to render harmless the gas; and, further, that an excess of ventilation is in some cases equally dangerous, if not more so, than having too little. In certain collieries the use of powder has been abolished, and with no great injury to all concerned, although prior to the cause resulting in this change would be looked upon as impossible to do without. Safety-lamps have superceded the use of candles in collieries worked with the latter for years, enjoying the reputation of a safe pit, until the fallacy has been too startlingly proved. Resulting at first in a little grumbling, but eventually found to be a safeguard; and, as use is second nature, the use of the candle is forgotten.

If explosions are to be reduced to a minimum powder will have to be abolished, or if used at all only when all the men are out of the pit, excepting those delegated to the duty of firing the shots. The use of safety-lamps will have to supersede that of candles or naked lights, constructed so as to prevent their being tampered with, and when in the presence of the deadly enemy be certain to go out. These suggestions I do not lay claim to, for I have had them made to me scores of time by managers of collieries, and not unfrequently heard the wish expressed that they could be enforced. The result of doing so would entail a certain increase in the cost of the coal produced. Neither the owners or men would have to bear it if all collieries were put on the same terms; it would be the public who would have to bear the additional burden, and although they might grumble, right gladly they would pay an additional cost if it was known that it would be the means of saving life. They would, if individually asked the question whether they objected to pay the price that would prevent these terrible events taking place. I believe to a man the English public would gladly assent, and with a hundred times more pleasure than subscribe to a fund to provide for the dependents of those who may have lost their lives. With an extensive knowledge of the different collieries throughout the kingdom after the late disastrous explosion, I feel bound to state my convictions, although they may, like an autumn leaf, fall to the ground, and be thought of no more.—*Oct.* 16. PREVENTION.

THE BAROMETER, AND COLLIERY EXPLOSIONS.

SIR,—In former letters on this subject it has been noticed that most serious explosions occur in the winter season, and also that they occur after a rapid and serious fall of the barometer.

The very serious case at Wigan has occurred under peculiar circumstances, so far as the reading of the barometer is concerned. A Wigan paper states that "on Saturday week, the 6th inst., the barometer reached the highest pressure registered since March, 1874, and then a rapid fall took place, reaching its lowest point on the day of the accident." The actual height of the barometer on the day of the explosion was not low, but a rapid fall had taken place of nearly 1 inch, it having fallen from 30·45 to 29·66. This is remarkable, and there is no doubt that these accidents occur generally after or during those sudden and great fluctuations in the state of the atmosphere.

This extraordinary high barometer on the 6th appears to have extended over a great range of country; when we wrote it was on that day 30·51, and on Thursday 29·60. Colliery managers ought to be on the alert when the barometer shows any symptoms of fluctuating.

Newcastle-on-Tyne, Oct. 16. —— VIEWER.

EXTRACTING MOISTURE FROM PEAT.

SIR,—As a large number of the readers of the Journal are much interested in the economic treatment of peat perhaps you will permit me to direct their attention to the invention of a friend of mine, which would, in my opinion, be of considerable importance for that purpose. I allude to the invention of Mr. W. C. Sillar, of Kidbrooke Park-road, Blackheath, which consists in first expelling the moisture by subjecting it to percussion, or to percussion in addition to sustained pressure, in a vessel having suitable means of ingress for the peat to be treated, and of egress for the moisture expelled and for the solidified matter; and the invention consists further in filter presses or apparatus to be used in the process. According to one arrangement he puts the peat into a vessel or cylinder open at its upper end, and mounted vertically over a layer of straw, or other suitable filtering substance, interposed between the lower edge of the said cylinder and the ground, so as to allow the expelled water to pass out, but to retain the solidified matter, and he inserts in the upper part of the cylinder, and above the matter to be treated, a piston, to the rod of which he gives a series of blows by means of an ordinary hammer, a tilt hammer, a steam hammer, a "monkey," or by other suitable mechanism. The water or moisture is thus driven out of the matter under treatment in a series of jets, and when it is sufficiently solidified he forces or extracts it from the vessel or cylinder, the lower part of which he prefers to make of a slightly conical or taper form, the lower end being larger than the upper, so as to facilitate the removal of the solidified matter.

In the foregoing arrangement the principle of simple percussion alone is used, but the apparatus may be so constructed as to subject the matter under treatment to sustained pressure by means of weights, screws, levers, or hydraulic presses, as well as to percussion. The apparatus constructed according to this arrangement consists of a cylinder, in which works the piston, by means of which the matter under treatment is subjected to percussion, the head of the piston-rod being acted on by any of the means of percussion. The piston-rod passes up through a tube, the lower end of which bears upon the upper surface of the piston. The said tube is depressed by means of a weight, a screw, a lever, or a hydraulic press acting upon the upper end of the said tube, which projects above the cylinder, and by this means constant pressure is exerted upon the piston, and through it upon the peat under treatment. The cylinder is constructed with or bolted on to a chamber of any suitable form and size, in which the peat under treatment is compressed as it descends from the said cylinder. This chamber has a perforated removable bottom, which is covered with a layer of straw, sand, or other suitable filtering medium, through which the expelled water passes out of the apparatus.

When the peat has been sufficiently solidified the bottom is removed, and the said matter is extracted. The matter to be treated is introduced into the cylinder through an opening therein, provided with a suitable door or valve. Instead of using the tube and the mechanism acting thereon, for the purpose of applying sustained pressure to the matter under treatment, that object may be attained by pumping the matter to be treated into the cylinder by means of a force pump. Or, instead of using the aforesaid tube, the sustained pressure may be applied to the matter under treatment through the piston-rod. I think it will be admitted that this apparatus is free from the complication often complained of, and is at least worthy of a trial.—*Lewisham, Oct.* 16. HIBERNIAN.

SIGNALLING IN MINES.

SIR,—Although it is always desirable that all machinery and apparatus used in mines should be as simple and as little liable to derangement as possible, and for this reason electricity is generally to be avoided, yet I think the invention of Mr. Emil Henrich, of Kupferdreh, may be regarded as an exception, since it is difficult to imagine how anything other than electricity could accomplish that which he proposes. The invention to which I refer consists in a mode of signalling between the cage in which miners descend and ascend and the top of the shaft, by which means the people in the cage can at any time communicate with the engineer or other person above, and *vice versa*, whether the cage be ascending or descending or stationary. To accomplish this the rope to which the cage is suspended is provided with one or more insulated electric conducting wires, the ends of which project beyond the ends of the rope, and are connected above to the ordinary bells and battery, fixed to the drum on which the rope is wound, or connected to the axis of the drum, and below to a signalling apparatus in the cage, or the signalling apparatus can be above and the bells and battery below, or both may be employed above and below. When the cage is at the bottom of the shaft the signalling apparatus can be used to communicate messages between the bank or mouth of the shaft and the workings in the mine.

Another invention connected with signalling in mines to which I may direct attention is that of Mr. A. C. Bagot, of Rugeley, which is also an application of electricity, but it has the recommendation that it enables the sender of the order to ascertain by inspection whether the signal has been correctly transmitted and understood. The novelty and arrangement of the apparatus can be very readily understood. Mr. Bagot places at the bottom of the shaft a transmitting instrument, the construction of which is hereinafter described; the electric current transmitted by this instrument passes first through an indicating dial attached to the said instrument; secondly, through an indicating dial conveniently placed in the winding-engine house; and finally through a similar indicating dial at the banksman's station, situated at the top of the shaft. At this latter station there is also another transmitting instrument, which communicates with a receiving dial at the bottom of the shaft.

Before entering upon the description of the signalling process he first describes the peculiarity in the construction of the transmitting instrument, which consists principally in the arrangement of parts for "making" and "breaking" the circuit, whereby it is a-

sured that a full and complete contact should be established, however rapidly the instrument may be worked; and, further, when left ready for use it shall be impossible for the instrument to stop in such a position as to maintain the electric current, thereby preventing waste of battery power. From the surface of a disc a number of pins project, which are placed in a circle, and so arranged that when the disc is caused to revolve in manner as hereinafter described one of the said pins will raise a spring finger, which is coupled to the battery wire, and placed immediately under another spring connected with the wire passing to the dial; the under side of this upper finger is provided with a projecting platinum stud opposite the platinum stud on the lower finger.

The under finger connected with the battery when contact is broken rests on a stop, against which it is held by the piston of a pneumatic cylinder connected thereto by a rod, the distance between the pins upon the revolving disc representing a space within which, whilst the disc is revolving, the contact between the upper and lower fingers completing the circuit is made and broken, the duration of contact being determined by the length the lower finger projects over and beyond the pitch circle of the pins. A difference of length in the upper and lower fingers causes them when closing or making contact to rub against each other during the time the electric circuit is complete, thus preventing dust, or other extraneous matter, resting between the surfaces of contact.

A wedge supported on one end of a spring finger is so placed that when contact is broken the inclined surfaces of the said wedge will project between and press against the inner surface of the two bottom studs when at rest. The pressure thus exerted by the inclined surfaces of the wedge against and between the studs prevents the machine when left to itself stopping in such a position as would keep the contact closed. The operating handle of the transmitting instrument is provided with a pinion, which gears into a wheel giving motion to the disc carrying the projecting pins, such wheel being free to move in one direction only, one revolution of the working handle and pinion being about equivalent to the traverse or partial revolution of the disc representing the distance between one pin and another.

When the batteries, dials, and transmitting instruments are arranged for work in the manner described, and a proper code of signals determired, the operator, whether pitman at the bottom of the shaft or banksman at the top, transmit their signals to each other and the engine-driver by turning the handle of the transmitting signal instrument. About one revolution of this handle makes and breaks contact by causing the pins on the face of the disc to lift the lower spring finger into contact with the platinum stud on the upper finger, such contact continuing until the pin has passed the end of the finder, when the contact is broken by the pneumatic piston drawing the lower finger down again to the before-mentioned stop. The action thus given by means of the handle to the transmitting instrument simultaneously moves in one direction and in unison the whole of the indicating needles of the various dials. I am not aware that Mr. Bagot's invention has been anywhere practical tested, but, judging from the description of it, it certainly appears less open to objection than many propositions which have been made.

Oct. 15. NEGATIVE.

STAND FOR ROCK BORER.

SIR,—While I cannot emulate the fluency and ability of your correspondent, Mr. R. Tredinnick, on the branches of mining affairs with which he usually deals so admirably, nor with the knowledge, theoretical and practical, force, and completeness with which your other correspondent, Mr. John Darlington, is treating of Rock-Boring Machinery in your columns, yet I appreciate very highly, as I doubt not is the case with your readers generally, all such important communications to your widely-read and valuable Journal. They are much calculated to promote the best interests of that large class of the general public who are, more or less, connected with mining pursuits, and more especially of those who have the practical direction of such matters at the present time.

Mr. Tredinnick, I observe, in his letter in the Journal of Saturday last, offers the following significant piece of advice:—"Let Cornwall introduce practically the boring machine;" and from what I know of the capabilities of that important tool, if rightly used, in the hands of the miner, well will it be for those engaged in working our home mines if the suggestion be promptly and generally acted upon. Mr. Darlington, again, seems resolved that those who may desire to use the Boring Machine shall be at no loss as to how to employ it under the most favourable conditions, and in the most effective manner. He has already referred, apparently in a very just and generous way, to the boring machines of most other inventors; but, so far as I have seen, he has not yet described the peculiarities of that which bears his own name. This I consider an omission, which I hope he will supply, because I regard the Darlington Borer as perhaps the most simple, strong, powerful, and effective machine of the kind that has hitherto been constructed. I have seen it myself penetrate very hard rock to the depth of 12 or 14 inches with almost astonishing rapidity, requiring merely to be drawn back to its proper point of departure in order to repeat the operation as often as necessary with precision and facility. I trust, therefore, to learn more about it from the pen that can best describe it.

Not only must the boring-machine itself, however, be a good and effective tool, but a stand that will hold it rightly and allow its position to be easily and quickly changed is likewise essential. In this respect it has hitherto been felt that there has been a good deal to be desired, and "necessity being the mother of invention," I suppose, I think it will be found that Mr. Darlington has recently designed and perfected a stand that meets the want very satisfactorily.

At the Ballacorkish Mine, in the Isle of Man, it has recently been arranged to put the shaft down other 25 fathoms. The Darlington borer, which is the machine employed to effect that object at this mine, is worked in connection with a shaft-sinking stand of an entirely new character. While the stand referred to retains the boring-machine thoroughly in position, and admits of the instant movement of the borer from one point to another on the face of the shaft, it provides for the withdrawal of the water, the blasting of the ground, the drawing of the stuff, and, above all, for the safety of the men. All these desiderata the stand in question undoubtedly supplies; and if not patented it deserves to be so—in fact, it is not too much to say that it is a great success. The Darlington borer, I understand, is being successfully used in France, Germany, and other places, and no doubt the new stand also will soon find its way there: but no Cornishman, I believe, will find any difficulty, if he desires to do so, in seeing it in use nearer home.

Oct. 17. ONE WHO IS INTERESTED IN MINING.

WYE VALLEY MINE, AND ROCK DRILLS.

SIR,—I shall be very glad to see the question asked by "Old Drill," in last week's Journal, fully answered. I confess I cannot understand why such machines should be so useful in Cornwall (as I read in the Journal they are) and so out of favour with a clear headed and highly intelligent miner like Mr. John Kitto. It is a matter of the greatest interest to all investors in mines, and the question will not, I trust, be allowed to drop until all that can be learnt with regard to these machines in driving levels in the Welsh mines has been fully discussed. What have the makers of the many descriptions of rock borers to say to Mr. Kitto's statement?

THE DIRECTOR WHO RAISED THE QUESTION.

London, Oct. 15.

COST-BOOK MINES.

SIR,—Great caution is requisite in speculating in Cornish mines conducted on the Cost-book System. This system is open to many very serious abuses, among them reckless mismanagement, inadequate and fictitious accounts. A further notably deplorable feature in connection with this peculiar Cornish system is the entire absence of an efficient audit of accounts by an independent practical accountant. And last, though not least, a system under which a purser can borrow 25,000*l.* or more of the company's bankers on the responsibility, but without the knowledge, of the general body of shareholders rather than gradually create support, and maintain a reserve fund to meet exceptional payments, such as extra plant or losses, cannot be any longer tolerated, and, therefore, the sooner a complete and radical reform is effected the better it will be for 'One and All." W. W.

THE COST-BOOK SYSTEM.

SIR,—Will some one of the readers of your valuable Journal kindly give me through its columns an answer to the following question:—If the purser or agent of a mine receives proxies for use at a meeting of a Cost-book mine, and signs the Cost-book on behalf of those shareholders from whom he received the proxies, will such shareholders be rendered liable for banking and merchants' charges about which there may be any doubt, or for uncharged costs and merchants' bills up to the day of meeting?

A SHAREHOLDER IN COST-BOOK MINES.

PATELEY BRIDGE MINE.

SIR,—I noticed a paragraph in last week's Journal in which it is stated, "The result of the month's work shows a small loss. The ore—15½ tons—estimated at 193*l.* 10*s.* cost 270*l.*" It would appear from the above statements that the 15½ tons referred to was the month's produce of the mine, which is not the fact. That quantity was obtained from the two ends and stopes in the 30 fm. level. A perusal of my report of Oct. 6 shows that we have realised a good quantity of ore from the Lumb, Fielding, and Sun veins, in addition to the 15½ tons, and instead of being a loss we made a small profit.

Oct. 16. C. WILLIAMS.

MINING IN THE ISLE OF MAN—GLENROY MINE.

SIR,—Nothing is further from my mind than to attempt to depreciate the value of Glenroy Mine, but in the interest of truth and self-defence I am reluctantly compelled to put in my disclaimer to certain statements advanced at the last general meeting. My estimate of the lode in question was 3 tons of blende per fathom, adding that lead ore occurred in infrequent "flowers" only, and was not sufficient to value. My friend Capt. Rowe must have unwittingly confounded his pitman's valuation with my own.

Rushen Mine, Oct. 16. JOHN BARKELL.

MINING IN MONTGOMERYSHIRE.

SIR,—The letter of your correspondent, "J. D.," under the above heading, would lead one to suppose that all the trials in that district were being carried on by local enterprise, but such is far from being the case. For instance, Ystrad Einion Mine, near Glandovey, where they have just started some very fine machinery, is the property of some Manchester gentlemen, and Hyddgen Mine belongs to a party from London. This latter mine, where a large wheel has been erected, and a shaft is now being sunk to get under a fine course of ore discovered near the surface, although somewhat difficult of access, bids fair in my opinion to excel all the others, owing to the character and nature of the lodes known to exist within its boundaries. Its western boundary, which adjoins the eastern boundary of the Cambrian Mines, is within half a mile of Esgair-ffraith shaft, where the recent discovery, or rather rediscovery, of rich copper has been made, and the lode (visible in two or three places) is in Hyddgen sett for a length of nearly, if not quite, three miles. South of this there has been found the Havan and Henfwlch lode (another instance of local enterprise), of which there is the same, or nearly the same, length. I believe there are other lodes, but I think I have said enough to prove that the chances of success are more than enough to warrant the large outlay that has been made, and which I sincerely hope will be returned many times over to its spirited owner, who, I am happy to say, enjoys the respect and esteem of all who know him. It is to men like these that we must look for the revival of mining, and not to local enterprise, which, when it exists at all, is of a very hesitating and halting nature, apparently desiring to revel in the sweet enjoyment of profits without the preliminary outlay of capital.

Machynlleth, Oct. 16. CYMRO.

P.S.—Since writing the above I have heard that a gang of men, headed by the captain of an adjoining mine, have destroyed the Hyddgen water-course and stopped the sinking of the shaft; an outrage like this is very much to be deplored, but from what I have heard of the owner I do not think he is at all likely to allow it to remain unnoticed, and the perpetrators of it may probably have an opportunity of quietly meditating over their past misdeeds.

LEAD MINING IN THE HIGH PEAK OF DERBYSHIRE.

SIR,—In last week's Journal I find certain questions asked respecting the new undertaking spoken of in your issue of Sept. 1. These questions are such as can most easily be answered. I will, therefore, reply, and shall be pleased to answer any further questions that may arise respecting the property:—75 or 80 years ago, when the 20 to 30 mines on these Moss Rake lodes were at the top of their prosperity, the owner of this virgin property, then over 70 years of age, and without family, began with horse-whims to sink two or three shafts. He reached the ore, and found it rich—was overpowered with the water, and having no cash to go into steam-power, and if he had Boulton and Watt's engine of that period, 8-horse period, was all that could be obtained, and the property has remained unopened to the present year. The owner has had it in possession ten years, but has taken no active steps to form a company, and the requests even now are from without. The ore is 78 per cent. gross assay from the lode, and will sell for cash net at 13*l.* 10*s.* per ton; but the pipe ore will reach 80 per cent. assay, and will sell for 14*l.* per ton on the spot. There is always a brisk demand for this ore, its freedom from impurities and its kindly fluxing properties in the furnace giving it a pre-eminence with the smelter. The pipe work spoken of as crossing these lodes in this sett is called Moor Furlong, and has been worked some miles W.N.W. from the village, and crosses these powerful lodes at 200 yards from the west boundary. Crossing these lodes at this point, and running S.S.E. at an angle of 45° for a considerable distance W.N.W. of the lodes, this pipe work is virgin, and S.S.E. of the lodes it is entirely virgin its whole length. There are two other pipe works that cross the Moss Rake lodes—one at the Outland Head Mine, one mile west of this one, and another, called the Brunt pipe, crosses at the Raddle Pits Mine, a mile further to the west; they range just like this one, and at a similar angle, and have made the two mines spoken of at the points of crossing large and wealthy workings, as the barmaster's and owner's books will testify.

The pipe now spoken of is embedded in a mineral called in Derbyshire cauk, a heavy white mineral—the sulphate of barytes. This mineral sells for 14*s.* and 16*s.* per ton, and is worked up at the mills in the district into barytes, and sells at 4*l.* to 5*l.* per ton. I need not explain what is done with this article. Sometimes it is combined, in Moor Furlong especially, with fluor spar, which is of equal value as a rich flux for smelting purposes, also for the manufacture of fluoric acid—so that not only the ore is of high assay and value, but the two minerals also.

The productiveness and nature:—The second of these questions I have already answered. With regard to the former, let me say this pipe yields ore at two known depths—18 and 26 fms.—and is found like a chain of pockets of ore, like the links of a chain in continued succession, and flat—never vertical; and whenever such pipe crosses a powerful lode or lodes these pockets either become caverns of ore, or the lode itself becomes very rich. Sometimes both lode and pipe partake of the advantage of the junction, and sometimes one of them; but in whichever case the deposit is rich in the extreme.

I might just now give the writer an example: not far from this place the Eyam Company had such a lode and pipe crossing at Hucklow and Eyam Edge great lode, and the wealth was fabulous in 1853, '54, and '55, with 1400 shares, 3*l.* per share paid. They sold each four weeks, and declared and paid a monthly dividend of 1*l.* per share, or a profit of 400 per cent. on the paid-up capital, and these shares ran up to 65*l.* each. What this may prove to be is difficult to say. The lode itself yields its ore in white Derbyshire spar, which is known all through the land, and needs no explanation. This shaft is now sunk 130 ft., or 50 ft. since Sept. 1. The difficulties you may reduce to (say) water 300 to 400 gallons per hour, which is easily raised, and we expect to meet with no other... have already very strong spar joints in the bind crossing the... east and west; this is in the direction of the lodes. The shaft... set out and dialled to be away from the north lode 40 ft. as ne... as could be ascertained, and how it comes to pass we have s... quantity of spar already can only be explained by supposing... lodes are much nearer the shaft than was anticipated. We... now reach the lime formation any day. Then we shall sink... ther 20 to 25 fms. in lime, and cross-cut the lodes. We m... five to six months before this is done; but at the rate we are... we do not expect to be longer, when we shall be pleased to... your Cardiff correspondent something new that may please... greatly, to which period we look with much expectation.

A VOICE FROM THE HIGH PE...

MINING IN NORTH WALES—PANT-Y-MWYN.

SIR,—On a previous occasion having had the pleasure of... municating through your valuable Journal for general inform... the very favourable impressions which I entertain respecting... success which must inevitably attend the above undertaking... vided that energy and perseverance (two qualities essential... quisite to the attainment of success in all matters) be displa... carrying out the necessary details for development of the m... question. A friend of mine has shown me the recent annual r... of the managing director (Mr. Wilson Penney), which is lucid,... and encouraging to shareholders, especially in the statement... increased produce is a veritable fact. I quote the report allud... verbatim: "The produce of the mine has gradually improved,... with difficulty the output was 5 tons per month nine months... now 18 tons are easily brought to bank, and a prospect of... d ubled or trebled as more ground is opened for the men to w...

The opening portion of the report alluded to indicates the... sence of valuable ore in large lodes, but since I read that re... have been given to understand that the superintending dir... hitherto afforded for carrying out details under a managing di... has been replaced by the captain of the mine bec ming direct... sponsible to the board of directors for the management and wo... of the concern. I pass no opinion upon any internal arrange... of the matters of the company; but from a recent visit to the... I have again to endorse my previously expressed opinion th... affords a valuable opening to parties who desire to become... chasers of shares in a sound financial well-conducted busines... I believe that there is every prospect of an increased impetus... given to the realisation of a larger income from the sale of or... a fair dividend may be looked for at the next annual general... ing.—*Oct.* 13. V. S...

THE COMBMARTIN MINES.

SIR,—It is very doubtful if any progressive mines in the U... Kingdom deserve, or are receiving, so much serious attentio... are watched with greater interest, than the Combmartin and... Combmartin Mines. Apart from the opinions of such able m... John Hitchins, W. Trelease, W. Newton, and others, all of w... have reported most highly of these properties, the many diffi... in the way of obtaining valuable pieces of land, which stood... way of their thorough and economic developments, have (t... to the untiring zeal and energy of Mr. Frederick Thomas, w... we understand, by far the largest shareholder in both undertak... happily been removed, thus adding an increased value, w... would be difficult to over estimate. The historical reputati... the district shows its richness for silver, the average perc... being not less than 70 ozs. in each ton of lead. Combmarti... sesses many advantages which would be looked upon as a f... to many mining districts of far less promise, there is abunda... water, winter and summer, labour is cheap, the mines are cl... a most convenient little harbour, only 20 miles across from S... from whence coals, timber, and all the necessary requireme... be readily and cheaply obtained, whilst the ores can be shipped... sent away at a comparatively insignificant cost. At West C... martin an adit level is being driven into the cliff at a depth of... 100 fathoms, which will intercept nearly all the lodes whi... in the sett, including the celebrated old Combmartin lode,... when last seen at about this depth was worth 100*l.* per f... and the increasing quantity of lead in the drivage seen ev... leaves but little doubt in the minds of all concerned that a... discovery may at any moment be looked for. In the Comb... Mine the shaft is down to about 40 fathoms, with large... of new ground east and west, all drained by a lower adit r... under the village. Splendid ore is being broken from the... the 37 fm. levels, and it must be obvious that a dry mine at s... depth, requiring no pumping machinery possesses advantages... must go a very long way to ensure profitable working, and it... surprising that even in these dull mining times the Combmar... West Combmartin Mines are looked on so favourably. Mu...

Oct. 17.

SOUTH CONDURROW MINE.

SIR,—My remarks on this mine in your valuable Journal of S... were neither intended to depress the shares for personal in... nor out of malice, nor through nervousness, to which one of... enlightened correspondents attributes my remarks, but simply... purely to counteract the almost weekly exaggerated and p... statements that have appeared in your and other columns a... mine. Twenty years ago I knew the mine, and long before th... sent manager knew a tin lode from a copper one. Capt. Rich's... is alike calculated to mislead as are the paragraphs to which I... already referred. I know the underlay of the lode in South... durrow as well as in South Carn Brea and Wheal Uny, and th... its whole course—upwards of 200 fms.—it may be as valuable... these mines. I agree, also, that the 250 fms. of ground we... may prove valuable, but indications in South Tolcarne and... western ends of the Grenville levels are not calculated to i... one with great confidence. If this ground is so exceedingly... able why were the workings at the eastern shaft suspended in... Tolcarne? It is not long ago that one boy who had been wo... the sixth blower applied for work at an adjoining mine, assi... as a reason that his machine was no longer required, there... but five then working. It is not past my comprehension... mine so admirably laid out with the shaft sunk and levels ext... with ground so easy and tin so rich, by the late management... the present manager succeeding such a miner as Capt. Joseph W... who did his work so well, should give profits at present dep... prices. There is one remark on such a class of mines I rem... hearing made by the late Mr. Tippet, auctioneer, of Truro,... selling a few shares in a notably hard ground mine, he rem... "Gentlemen, this is not one of those mines you can run thro... fast as you can wheel away the stuff; if it were, you may o... upon it you would soon see the end of it."

Let those who are interested enquire for themselves how f... probabilities of the mine working for Capt. Rich's 50 yea... likely, before being induced to invest their money. Condurro... adjoining mine, dropped from a high price to nothing in a ver... months. Or shall the mine suddenly end like South Carn Br... the same lode under the same able management as South Cond... now is. The lode in South Carn Brea runs much deeper in th... probably twice or thrice, giving backs of 300 or 400 fms. fro... southern boundary to the northern apex, and hundreds of fa... in length. Yet, with all the resources its death was sudden, w... it came from the miserably slow process of sinking—9 or 10... month—in pick ground, when as much could have been don... week, as I and my companion agreed upon when last on the... and the shares selling at high prices. We saw its doom, and... our interest in the mine. If a comparison of development s... face and underground be required, let any novice in mining m... look upon these mines and he will have no difficulty in arriv... a correct estimate.

As to the remarks of Mr. Leach, I say to cast suspicion... abuse are his only arguments, and beneath my reply. "C. W."... envied any man's riches nor any man's mine, nor knowingly o... signedly overestimated or exaggerated statements for a temp... advantage. Let those who wish to see South Condurrow or any...

shares rise legitimately and without false representations wait, and they will see no remarks of caution from your old correspondent—
C. W.
Oct. 16.

SUCCESSFUL MINING—THE CAMBRIAN, AND CAPTAIN ABSALOM FRANCIS.

SIR,—The name of Francis is associated with successful mining industry throughout Great Britain. In Cornwall the mines in Greenap were opened and rendered profitable chiefly through the indomitable energy and practical engineering of the late Capt. Wm. Francis. His son became his successor, and an equally fortunate manager of Cornish mines. The late Capt. Henry Francis, at Wheal Virgin and other important copper mines in Cornwall, realised vast wealth to all connected with him. Their brother, Capt. Absalom Francis, was the pioneer of great successes in North and South Wales, and as a practical engineer was recognised and acknowledged before even railways or the name of Stephenson appeared upon the topis. The late Capt. Matthew Francis loudly advocated the mineral wealth of Cardiganshire, and it is due mainly to his advocacy that the Lisburne and Goginan Mines became developed, and a host of other lead-producing properties that sprung into existence. The practical intelligence and sound philosophy of this gentleman culminated in the profitable revival of mining in the great basin of clay-slate lying on the lime-rock, and extending down to the waters of the Irish Sea—in fact, mining in Cardiganshire and Montgomeryshire received an impulse from his example and writings which led to that prosperity and public recognition which raised the two counties in question to the very pinacle, or rather acme, of fame. The Lisburne, Goginan, Cwm Erfin, Bwlch, Cambrian, and Grogwinion, attest his practical experience and sound knowledge in Cardigan, while the Van, Dyliffe, Bryntail, and Nant-y-Iago in Montgomeryshire, were advocated by him, even in their infancy, while successful mining in South America and in Spain will ever remain identified with his practical skill and experience as a miner. This gentleman died in harness while engaged in the surveying of mines in the Peninsula.

To his brother Capt. Absalom Francis is due the successful development of the Cambrian and the Tyn-y-Fron Mines. The former represents the Esgair-Hir and the Esgair-ffraith, the first is now opening out rich courses of lead, and bids fair to equal the best properties in the Principality, while at Esgair-ffraith one of the finest deposits of copper is discovered since the palmy days of Devon Great Consols, which in the second year of its existence declared dividends of 7*l.* per share on 1*l.* called up, and after the lapse of over 30 years continues to yield dividends, the last of 2560*l.* being declared so recently as July in the current year. At Esgair-ffraith a gossan back of 100 fms. in length, with the forebreast continuing, has been laid open at the adit level, and in the shaft sunk 23 fms. deeper the whole yields 6 tons of rich copper ore per fathom—valued at 100*l.* A level is now being opened out east and west on the course of the lode on the soft or gossan part, and in a short time a section of 20 to 30 fms. in both directions will be available for stoping. Should this reach be equal to the shaft, 1 fm. a month wrought will realise 200*l.* The next object to achieve is to sink the shaft another 10 fms., and then the Cambrian Mines promise to rival in yield and profit the best copper and lead mines in Great Britain. There is in this property all the elements essential to success, and in the practical supervision of Capt. Absalom Francis and Thomas Granville there can arise no question as to the economical and rapid development of the mines in length and depth. At present everything is *couleur de rose*, and so far as promise can foreshadow the future brilliant success will follow.—*Oct.* 18.
OLD MINER.

SOUTH CONDURROW MINE, AND WHEAL GRENVILLE.

SIR,—These mines have been, and are still being, brought prominently before the public, and much is said in praise of the present management and prospects of both, far too much when a calm survey is taken of the actual position of the properties. First, as regards South Condurrow, I cannot see that the present management is entitled to so much credit. The mine was opened, the rich bunches of tin discovered, and the extensive and efficient machinery erected by Messrs. Vivian and Son, to whom, therefore, the satisfactory success of the company is mainly owing. The present manager stepped in when all that was necessary to be done was to take down the ground laid open, and that ground turning out excellent stuff for tin, the result is the present favourable position of the company. If Messrs. Vivian and Son had not made the discoveries in South Condurrow their successor could no more have worked the mine to a profit than he has been able to at Wheal Uny and South Caren Bros., in both of which mines the same lode exists. South Condurrow's success arises from its being a shallow mine, and the stuff of high produce compared with the average of the county. The 92 and 82 fm. levels have been very productive. The lode is cut, as it were, by numerous branches, which wherever they have run into the lode have made rich deposits of tin. The 93 fm. level, compared with the 72 and 82, is a poor one, and below this point the company cannot go, because here the lode will quickly unite with Wheal Grenville. It will thus be seen that as regards depth the mine is cut off at a (for a Cornish tin mine) comparatively shallow depth, and when we are told of there being ground enough still for 50 years we may treat it rather as a joke than a serious fact. It might probably take 50 years to work away the whole of the present, productive and unproductive, which constitutes the extent of the sett, but one can hardly imagine that a body of adventurers would care to operate on barren rock only for even the tenth part of 50 years. Considering the point at which the mine is cut off in depth the shareholders must not indulge in the hope of a long and profitable future. As regards Wheal Grenville, the South Condurrow lode probably enters that mine at or about 100 fms. in depth. The lode cannot be in the mine at 90 fms., because at that depth a cross-cut was driven some years ago up to the South Condurrow boundary, and without any lode being met with, although one or two branches were passed through. It is, therefore, pretty evident that Wheal Grenville can never have the run of rich tin ground which has made the wealth of her neighbour at the 72 and 82 fm. levels.

The best level in Wheal Grenville upon the South Condurrow lode has been the 130, and at and about the north shaft, where the new 80-in. pumping engine is being erected, there has been an excellent lode for some fathoms in length and height, but I believe it is worked up to the limits upwards, and the company is now looking for a profitable mine at deeper levels. In my opinion they are making a great mistake. The chances at Wheal Grenville are shallower between the point at which the lode comes into the sett and the 130. The 140 is not so good as the 130, the 150 not equal to the 140, and the 160 or deepest level has been inferior to them all, thus showing that the lode is not one that is likely to improve in depth; and I think the adventurers have been badly advised to go to such an enormous outlay for new machinery for going deeper. Before taking such a hazardous step they should have put out a cross cut at the 90, under the cross-cut at the 90 just alluded to, and sunk a winze on the latter upon one of the branches so as to prove the lode between the 130 and the point at which it comes into the sett. A discovery here would give them a fair run of tin ground westward between the two points; if nothing be found I consider there is no other chance in the mine, as every surrounding feature—the fact of the shallow bottom of South Condurrow, that each succeeding level in Wheal Grenville is poorer than that above it—tends to show that success, if to be met with, can only be looked for at shallower levels. Shareholders are being led to hope for a great discovery at the junction of the old lode and South Condurrow lode at or about the 90 in the north shaft. I would advise the adventurers not to buoy themselves up with much anticipation on this point.

In South Condurrow the best bunches of tin have been formed by cross-feeders or branches dropping into the lode. But what will fall in the South Condurrow lode at or about the 150 in Wheal Grenville? The north shaft is not a rich branch but a poor lode that has never contained any mineral during the whole course of sinking upon it, and I will surprise me if it causes any improvement in the flat lode when it falls into it. No one can positively assert that it will not, but if it does, a natural phenomenon will occur here which I never heard of elsewhere. I do not say there is no chance of success at Wheal Grenville, but I am strong in my conviction that there is no chance for the company as they are now going on, which in my opinion is rash and reckless in the extreme. If the mine were my own I would even stop all present erections of machinery, &c., nor lay out another shilling thereon until I had proved the points I have mentioned. I would bear with the heavy loss the expensive erections have thus far caused rather than increase my outlay in that respect until I had tested shallower ground. If I found the lode unprofitable there I would not adventure upon it deeper. Many will, no doubt, differ with me, but a few months will show how far my views and opinions are correct or erroneous.
Camborne, Oct. 16.
PETER PROVIS.

LLAN GAN LEAD MINE.

SIR,—Having on several occasions visited the above mine, and on each visit left with a deep impression of its value, I quite agree with your correspondent, "Tourist," that "we have the most satisfactory evidence of a rich mine, and only requiring development to yield a harvest to the shareholders." It must be remembered that time is required to open a mine thoroughly, and sometimes it is years before any lead is sampled; but, although this is a young mine, many tons of lead have been sold, and I am informed that within the last few days a large body of rich ore has been found in the drivings west of the old engine-shaft, while the other parts of the mine are opening out well, and giving indications of further improvement. I am glad to see that this mining enterprise is attracting the attention it deserves, and I believe shareholders will be amply satisfied with their investments in it.
SHAREHOLDER.
Oct. 18.

VALUABLE DISCOVERY OF SLATE IN NORTH CORNWALL.

SIR,—I had much pleasure in visiting the Prince of Wales Slate Quarry a few days ago, the property of Sir F. M. Williams, Bart., M.P., and, to my great surprise and delight, found that his energetic agent, Captain Jenkin, had at last succeeded in discovering a splendid bed of slate. Sir Frederick's patience has at last met with its reward, as I understand he has spent several thousands of pounds there. The quarry is in a direct line from the far-famed Delabole Slate Quarries, and adjoining the Bowethick Quarry; and I believe that the whole district from Delabole to the sea is a whole mass of slate, and valuable quarries may be opened there. This will also be the mining district of the future for shallow mines of lead, tin, and copper. There are also valuable setts of china-clay in the district; and the only things required to open up North Cornwall are capitalists and the railway. If the South-Western Railway Company could be induced to extend their line from Wenford to Delabole or Camelford great results would be anticipated.
A CORNISHMAN.

P.S.—I am informed that there is a company now forming in Staffordshire to work the Trevarthen China Stone and Clay Quarries, in Advent, which would be a great inducement to the railway; and the only thing that prevents the development of the North Cornwall Kaolin Clay Company is the enormous expense in carriage.

NEW QUEBRADA COMPANY.

SIR,—I have attentively perused the correspondence that has recently appeared in your influential Journal concerning the affairs of this company, and am surprised that no letter has appeared from, or on behalf of, any of the responsible management in reply or explanation. Quite sufficient evidence has been given to prove the necessity, at any rate, for a rigid enquiry into the working of the mine; I fully agree with "Investigator" that it is time the shareholders took matters into their own hands, and I would suggest that in order to bring the agitation to some practical issue a committee should be formed of shareholders to confer with the directors, or take such other steps in the interest of the company as shall be deemed advisable.—*London, Oct.* 16.
A. C.

NEW QUEBRADA COMPANY.

SIR,—As an old shareholder, I have read with much interest the letters you have published in your recent Journals respecting the present unfortunate position of the New Quebrada Company, and I must own that these letters have made me painfully anxious as to the future of the Quebrada undertaking. We knew that the board did not contain a single member with even so much as a smattering of practical knowledge in mining, but it has only recently come to light that since the return of Capt. Harvey to England (almost a year ago) no practical mining man whatever has been sent out to take his place, and that the practical working of the mine, which (as will be seen by Mr. Darlington's report) involves, from the great width of the lode, a large amount of complicated and difficult engineering, has been left wholly to the company's book-keeper or accountant at the mine (Mr. Francis), who has been, and is now, struggling on, it appears, in such unsystematic and extemporising manner as he finds possible.

A recent letter from Venezuela distinctly states that he neither understands mining, assorting, or assaying the ore. I ask in all sincerity should we be surprised under such an extraordinary state of affairs as this at the arrival of 8 per cent. ore at Swansea instead of 28 per cent. stuff, as I am convinced we might be receiving with proper management in mining and attention to dressing? Our first cargo gave over 20 per cent. of copper, but then our mining operations were under the guidance of a first-rate Cornish mining captain, who understood both mining and assorting, and this cargo as I understand was from the first ore he took out.

No doubt further exploration—such as he would have made—would have "brought to light" even better ore, which, with his proper method of assorting and dressing, would have been realising to us to-day, perhaps, 30 per cent. mineral instead of 8. I understand now that the board, "stirred up" by the letters which have appeared in various quarters, have recently selected an ore assorter, and started him out to the mines. What is wanted is not an "assorter" simply, but one who in addition is thorough practical in opening up and timbering the mine, getting the ore out, and fully competent likewise as an assayer. Let no more practically worthless rock be shipped to Swansea for assay. Let no more ore be started away from the mine without its being sampled and assayed, by which operation an approximate percentage and value of the whole cargo can easily and readily be arrived at. How could a set of directors be so careless as to permit such a condition of things as would render the shipment of 8 per cent. ore here possible, when at the same time, too, they had Mr. Darlington's report before them, which distinctly stated that a 12 per cent. ore would be required to even cover cost of mining and transportation from the mines to the port of Swansea. We have a managing director—Mr. Hemming. But what does he manage, and how does he manage? He manages in the first place to get three times the salary of the other Quebrada directors, and in the second place draws an additional 200*l.* from the Bolivar Railway Company in respect of his seat at their board. But what does he do or "manage" for the Quebrada Company? Has he "managed" to carry out the simplest suggestion of Mr. Darlington, the company's consulting engineer, who six months ago advised driving a most important tunnel to the north of the main opening, so as to cross-cut the lode in entirely new ground, and which would in all reason lay open immense masses of ore of a highly remunerative quality? After all this time has the machinery even been purchased, let alone sent out, for cutting this most important tunnel?

Again, Mr. Darlington has distinctly recommended concentrating at the mine the immense quantities of low-grade ore now on hand. This recommendation was made so long ago as last spring. Has any step whatever been taken towards carrying it out? The whole of the works for such concentration might have been, could have been, finished months ago, and we might have been receiving for at least the last two months regular cargoes of "matte" from the ores so concentrated with largely compensating results, had the board only done their duty to the shareholders. The shares in that case would probably have stood at 6*l.* to-day instead of at 2*l.* It is now about a week since a cable dispatch reached London stating that the railway is practically finished, and that the locomotive is now running directly to the mouth of the mine. Is this important dispatch to be given to the shareholders (it should have been given through the newspapers at once), or is the board to persist in a silence which appears to be as dogged as it is unfair? What is the use, however, of a railway running plump up to the mine's mouth if there be no proper ore ready for shipment by it, or any proper experienced mining man in charge to obtain any? In fine, are the shareholders to allow such a board as they have now to continue to mal-administer their property, which, with proper handling, would soon, I have no doubt, become equally celebrated for its productive and remunerative yield.
A LARGE SHAREHOLDER.
Bristol, Oct. 18.

CHINA-CLAY WORKS.

SIR,—"Fair-Play" wishes me to name some works in which Capt. D. Cock had been successful. If he will have the goodness to call on the captain he will, no doubt, obtain a satisfactory answer. I am not in a position to give particulars, but I know that he is a prosperous man—and deservedly so. "Fair Play" also desires me to say under whose management the loss in the banker's clay-works was incurred. He intimates that Capt. Minnear has wasted the investors' capital. I beg to inform him that Capt. Minnear was not the manager of the works referred to, and his advice was rarely, if ever, taken in connection with them; hence, I believe, the loss. The manager is not known as a practical man—as a clay-worker; and he should have submitted to the judgment of one who is of practical ability, like Capt. Minnear.
TOURIST.
Oct. 17.

THE EFFECT OF DECEPTIONS.

SIR,—On perusal of the article in last week's Journal under the above title, I was forcibly reminded with the truthfulness of the remarks therein stated as to the vast amount of injury inflicted upon legitimate mining enterprises by the numerous good for nothing and fraudulent projects brought before the notice of the public. Your correspondent "R. S." but too truly states that the success of bad men in thus imposing upon the credulity of capitalists by inducing them to invest has caused honourable men with good schemes to fail in success, because when impostures are made manifest investors, in disgust, withdraw from all speculation under the idea that all promoters are rogues alike, and that by such means the flow of capital into the mining districts is checked.

I will give you a remarkable illustration of the force of your correspondent's remarks from the facts which have occurred recently in my own case. Twelve months ago I was induced to make an application for shares by the publication of a prospectus under a taking title, with an intended capital of 20,000*l.*, in 10,000 shares of 2*l.* each, and well known bankers both in London and Cornwall. The supposed prospectus was most temptingly and cleverly worded in such phraseology as to induce those who read it to believe in its truthfulness. It represented that one-half of the capital had been privately subscribed (a falsehood); its rich lodes and future success a certainty; and the usual final assurance that in the event of no allotment the deposit would be returned in full. It had all the appearance of being a genuine prospectus, and greatly to my astonishment and mortification the whole thing proved to be nothing short of a complete swindle. The mine was never floated, no full prospectuses were ever printed, and the deposit which I remitted by cheque to the self-elected "manager, purser, and promoter" I have been unable to recover to this day, although I was compelled to institute legal proceedings against him in the Sheriff's Court, and obtained judgment in default of his appearance; a seizure of his household goods was made, but the amount recovered being insufficient the matter still remains unsettled until another seizure is effected. This case was clearly one for a criminal court, and but for the expense and annoyance to which such proceedings would have subjected me I would have made an example of the man, in order to stamp out such impostors who manage so successfully to swindle the public by such nefarious practices.—*Lloyd's, Oct.* 15.
R. B.

THE EXTRAORDINARY DISCOVERY OF COPPER.

The recent wonderful discovery of copper at the Esgair-fraith Mine, which is one of the mines owned by the Cambrian Mining Company (Limited), naturally suggests comparisons with the enormous deposits of the same mineral previously found in the Buller and the Devon Great Consols Mines. Both of these mines were singularly rich in gossan, and so is Esgair-fraith to an enormous extent. At the Buller Mine the lode in the adit level was composed of gossan, with a leader of black oxide of copper ore 2 to 3 inches wide only at this point, yet in a few fathoms sinking the product became worth 150*l.* per fathom, and the shares rose from 5*l.* to 1000*l.* each. There have been other mines equally startling in their results discovered from time to time in connection with large gossan deposits. At the Devon Great Consols Mine one of the first operations performed was to sink through the gossan, and in the year 1845 the large deposit of copper was first discovered. The next year (1846) copper ores were sold to the extent of 13,292 tons, realising 116,068*l.*, and profits were divided of 72,704*l.*, or 7100 per cent. for the year on the whole expenditure, and the value of the shares stood at 10,000 per cent. prem.; nor was this inconsistent with the actual value of the property, for up to the year 1872 no less than 567,637 tons of copper ores were sold for 3,056,109*l.*, with other credits of 94,469*l.*, making a total of 3,150,578*l.*, with dividends paid of 1,186,816*l.* The mines are still profitable. These mines, like the other great copper-producing ones, were rich in gossan, and gradually changed into black oxides and to sulphurets of copper in depth.

At the ESGAIR-FRAITH Mine a rich and peculiarly crystallised and mineralised deposit of gossan has been passed through at the adit level for fully 200 fms. in length, intermixed with black oxides and malachite copper ores. The eastern shaft, sunk 23 fms. on the course of this gossan lode, has continued to increase in value from the adit, and is now 3 to 4 ft. wide of rich copper ore, worth 100*l.* per fathom. There can be no question of this being the greatest discovery of copper made since the Buller and the Devon Consols. The backs of the lodes in each mine are similar in character, the changes in crystallisations, composition, &c., class, and quality of the ores identical, while the strata in each and all of the mines as clay-slate, with the lodes intersected by cross ones, so that the magnetic and elastic currents have the same action in the formation of deposits of minerals. The great success of the operations at Esgair-fraith affords a pleasing and convincing proof of the great value of the opinions of practical mining authorities. Respecting this mine Mr. Absalom Francis, who has had 45 years experience, stated in our columns—"There cannot be the slightest shadow of doubt as to this opening out the greatest and richest mine in Wales; all that is wanted is a little time to reap the most abundant harvest that has been achieved during the present century." Mr. Josiah Hitchins who is so well known as the discoverer of Devon Great Consols, wrote:—

In May last I was professionally engaged to inspect and report on the Esgair-fraith Copper Mine, which is one of the mines belonging to the Cambrian Mining Company (Limited), and I was astonished at the sure evidence of immense mineral wealth it presented, also was most impressively reminded of the Devon Great Consols Mines in respect of the magnitude of the lode and its great mineral power, and I feel certain that the mine will realise very large profits.

Mr. Henry Boundy in his report said—

There cannot be the least doubt that the deeper this lode is opened up the richer the copper will be found. I have never seen such a strong copper lode, or one so beautifully composed; in fact, the lode is so great that when explored to a greater depth it is impossible to place a limit to its value.

Mr. Thomas Glanville (the chief manager of the Cambrian Mines) whose long connection with the rich mines of Cornwall constitutes him one of the most practical of miners, reported as follows—

Every fathom of ground we open proves the correctness of the high opinions expressed of the Cambrian Mines, from which I firmly believe millions of pounds worth of ore will be extracted, and the fame of the mines will last for generations, as containing one of the greatest mineral deposits ever stored up by Providence for the benefit of the human race.

To do full justice to these opinions, it must be remembered that they were expressed antecedent to the recent extraordinary find of copper ore, which, if we calculate the lode even at its present value, to extend the length of the gossan deposit already laid open in the

adit, and to a depth of 100 fms., the produce would be 2,000,000*l.* This is what the great discovery at Esgair-fraith ultimately means. The Cambrian Mining Company (Limited) must indeed be congratulated upon the possession of such a valuable mine.

Meetings of Public Companies.

NEW ZEALAND KAPANGA GOLD MINING COMPANY.

A special general meeting of shareholders was held at the offices of the company, Austinfriars, on Thursday,

Mr. HENRY WILSON in the chair.

Mr. W. J. LAVINGTON (the secretary) read the notice, which stated that the meeting was called to take into consideration the present financial position of the company, and to pass such resolutions as might be deemed necessary to authorise the raising of fresh capital. There was a full attendance of shareholders.

The CHAIRMAN having stated that he occupied the chair in the absence of Mr. Southgate (the Chairman), who was prevented by indisposition from attending, went on to say that the notice calling the meeting spoke for itself. He thought the shareholders would all pretty well draw the inference which it was intended that they should draw—namely, that the property had now arrived at a certain state of development, and the directors called upon the shareholders, if they were of the same opinion as he was himself as to the ultimate success of the enterprise, to give them some more money in the form of capital. He need scarcely tell the shareholders that the directors had experienced a great number of unexpected vicissitudes, but those who were familiar with mining enterprise must know that when they went underground whatever calculations they made upon the surface could scarcely be realised. Years ago when he had the honour of addressing the shareholders he told them the stage that the mine had reached. On the present occasion he was not in a position to speculate, because all he said now he said with certainty. The works were now beginning to realise the expectations which he had hitherto entertained of them. He did not ask them to accept any proposal or opinion of his own founded upon reports from the mine, but he would read them some documents, and then leave the shareholders to draw their own inferences as to whether the small amount of capital which the directors asked them to find to develope the property appeared to be what some people might be disposed to think throwing good money after bad. He would first read a copy of a letter which had been written by Major Keddall, Warden and Superintendent of Gold Mining in the Colony of New Zealand, and addressed to Mr. W. R. Collett, F.R.G S., late Surveyor-General to the Colony of New Zealand. It was dated from the Coromandel Coast, Aug. 27, 1877, but before reading that letter he would read one which had been received from the manager, dated some days previously.

The letter of the manager was then read. It has already appeared in the columns of the *Mining Journal*.

The CHAIRMAN then read the letter of Major Keddall, referred to above, which was as follows:—

"I have from the first taken great interest in the mine, for more than one reason:—1. I had reason to believe that the first owners deserted the mine too hastily, attracted by the new field and prospects at the Thames; and secondly, I have felt assured that if the mine was successfully worked it would prove the forerunner of more English capital to be invested here. I have kept myself posted in all the details of its progress, and never allowed a week to pass without visiting it. The lode is going down as strong and with all the same characteristics as in the upper levels of the old company's workings, where they met with such rich deposits. Foot wall and hanging wall just as well defined, and the same tough black clay adhering to the latter. The machinery is equal to proving the mine another 300 ft., and they have got another and much larger beam pumping-engine, with boilers and all complete, on the ground. The management is all you could desire. Capt. Thomas is a most skilful, experienced, energetic, trust worthy manager, and the enterprise could not be in better hands. The mine is now fully opened out; the main shaft 300 ft. deep, and a cross-cut of 400, meeting the lode and communicating with the old workings. The reef is opened out north and south from the cross-cut, and a winze is being sunk on the lode at the extremity of the cross-cut. The stuff from the winze is hauled up and the water pumped by an underground water-wheel 20 ft. in diameter, driven by the water flowing from the old workings, and which in any case has to be pumped to the surface by the engine at the shaft's mouth, a happy mode of utilising it which occurred to Capt. Thomas, and which enables him to sink the winze at much less cost than otherwise by using steam. To the north they are just now under what we know as the Albion Lead, where the old possessors got a famous haul of rich stone. On Friday last they obtained 100*l.* of rich specimens in the winze, or, rather, in an opening out from the winze to the south. Ever since they struck the lode in the cross-cut 15 months ago they have been in stone more or less auriferous, but the delays in remittances and the quantity of dead work necessary to open the mine have prevented them making better show. Now, I believe, they are in a position, if they continue to keep all the faces going, to give a good account to the shareholders. The works are carried on north, south, and on the dip of the lode, and any hour may produce a rich dividend. Nay, I will go farther, and say that if ever you can speak confidently on the results of a mine, it is a certainty that such will be the case if the present works are persevered in. Capt. Thomas sends by this mail a specimen or two of the stone raised on Friday."

The CHAIRMAN, referring to the letter of the manager, went on to say that nothing would induce Capt. Thomas to give a *couleur de rose* report. Capt. Thomas had invested largely in the mine, and from the commencement up to the present time the directors had never had the slightest reason to find fault with the mode in which he had conducted the mine. Commenting upon the letter of Major Keddall, he said it was a letter from an authority with regard to whose opinion they could not entertain a doubt as to the position in which the property now was, and what it promised as a further field of working. He had, therefore, to ask the shareholders to be good enough to subscribe a small amount more capital to develope an enterprise in which they, as well as the directors, were concerned. All that was required was 5000*l.* He hoped, after what he had read, that the shareholders would be of opinion that they had a valuable property. They had a manager who was probably not equalled or surpassed in the whole of the colony. He must ask the shareholders to remember that the directors had never called upon the shareholders for a single farthing. There had been a great deal of uphill work in endeavouring to develope the property, and considerable expenditure had been necessary. Should the shareholders ask where did the money come from, the answer was that the directors had found it, and it was now for the shareholders to consult their own interests, and find the 5000*l.* required. If the shareholders did not subscribe the amount necessary they must expect the consequences. As he had only had a brief intimation that he should be called upon to take the chair in consequence of the illness of the chairman, he must ask the shareholders to extend to him their forbearance with respect to the financial position of the company, the amounts of indebtedness, and what they had done with the money in the past. He had not had time to go thoroughly into these things, as he only received the telegram about an hour before he came into the room, but any questions which the shareholders might wish to put would be answered by himself, his colleagues, or the secretary. He would read the resolution which it was proposed to submit to the meeting:

"That the capital of the company, heretofore consisting of 100,000*l.*, divided into 20,000 shares of 5*l.* each, be increased by the creation of 2000 shares of 5*l.* each, bearing a preferential interest of 15 per cent., and that such shares be issued by the directors upon such terms and conditions as they may think expedient, but only 1000 of which it is proposed to issue at present."

He went on to explain that it was not intended to issue the whole of the 2000 shares at present, as there was not the slightest reason to infer that even the 5000*l.* would be required. From the remarks he had made the shareholders would know pretty well the exact position of the company. The capital had been chiefly expended in developing the property to the extent and position which it had now attained. They knew remarkably well that there was the gold in remunerative quantities if they had the capital to pay for the labour to work it, but if the manager went on from hand to mouth, and simply sold the produce of the mine in sufficient quantities to keep a small number of hands going, the mine could not be made productive, but if the directors got more capital, so as to be enabled to open up the resources of the mine, the shareholders might rest assured that good returns would follow. In conclusion, he (the Chairman) moved the adoption of the resolution.——Mr. T. F. GRAY seconded the resolution.

The CHAIRMAN, in answer to a SHAREHOLDER, repeated that although by the resolution power was taken to issue 2000 shares, the directors only proposed to issue 1000. He might mention that he had taken the warmest interest in this company from the beginning, and he did not at all think it likely that they would require the 5000*l.* The terms upon which it was proposed to raise the money were sufficiently easy, and perhaps he might as well mention what they were. The directors proposed to ask for 1*l.* per share on application, 2*l.* upon allotment, 1*l.* in two or three months afterwards, and the remaining 1*l.* in about three months afterwards.

——A SHAREHOLDER: Are you asking for sufficient to develope the mine?——The CHAIRMAN said he considered the mine was to a certain extent developed. Some of the specimens were giving prodigious returns.

A SHAREHOLDER said he should have thought that a mine which was producing 1 oz. of gold to the pound of ore would scarcely have required any appeal from the directors for funds.

The CHAIRMAN pointed out that it was to enable operations to be carried on on a large and remunerative scale, and added—"If those returns are secured by the work of six men, what should we do with sixty."

Mr. KOCH: You said the directors had found sufficient money for the mine; may I ask whether they have taken a first charge?——The CHAIRMAN: Several of the directors have advanced money in the shape of a mortgage on the mine.

Mr. OGLE (a director) drew attention to the large percentage of gold obtained from the ore, and said he hoped the shareholders, in their own interests, would find the money required, and so enable the company to make large returns.

Mr. GEORGE BATTERS: What rate of interest do the debentures carry?

The CHAIRMAN: The debentures already issued bear 10 per cent. per annum; the preferential shares now proposed to be issued will bear 15 per cent. per annum. The debentures were issued at par.

A SHAREHOLDER: To what extent do the Articles warrant the directors in exercising their borrowing powers?——The CHAIRMAN: to the amount of 25,000*l.*

Mr. G. BATTERS: There will be a first charge of about 1500*l.* a-year?——The CHAIRMAN: About 1600*l.*

A SHAREHOLDER: What is the object of raising the money in preference shares instead of debenture stocks?——The SECRETARY: We did ask the shareholders to take the debentures, but they would not take them.

The CHAIRMAN, in reply to further observation, said all the directors held largely in the company, some of them, in fact, in excess of their means.

A SHAREHOLDER suggested that they should take into consideration the reconstruction of the company altogether. (No, no.) He did not think the amount asked for was sufficient if the mine was of the value it was said to be.

The CHAIRMAN said it was now more a question of working the mine than anything else. (Hear, hear.)

Mr. KOCH asked whether the option could not be given to the shareholders to subscribe for additional debentures?——The SECRETARY said the debentures had already been offered to the shareholders, who had declined to take them.

The CHAIRMAN said that if only 1000*l.* or 2000*l.* were taken out of the 5000*l.* preference shares now proposed to be issued the directors would return the amounts to those who subscribed.

Mr. GEORGE BATTERS said he thought it was a very pertinent question that Mr. Koch had asked—whether gentlemen, if they so wished, could take up a portion on mortgage on the same terms as the directors had already advanced—15,000*l.* or 16,000*l.*——The CHAIRMAN said it was not a matter which the directors really had not discussed, inasmuch as the debentures had already been offered to the shareholders, who had declined to take them.

Mr. G. BATTERS: It will be satisfactory to know what amount of money you want to remit to New New Zealand to free you from debt?

The CHAIRMAN: Up to August 31 last our indebtedness did not amount to more than 100*l.* (Hear, hear.)

Mr. G. BATTERS: That is very different to what some of the shareholders thought.

The CHAIRMAN: The money we ask for is, as I have said, to develope the mine to what we, the directors, believe will be a success. I shall be most happy to give any gentleman access to the same source of information which induced us to come to that conclusion.——Mr. G. BATTERS: Then you have really no debt but the debenture debt and the share capital?——The CHAIRMAN said that was so.

A SHAREHOLDER said he believed the directors had never received any remuneration for their services. Now, he did not wish the directors to forego the remuneration to which they were entitled, and he did not think the directors would ask for it until the mine was remunerative, but perhaps he might enquire whether it was intended to apply all the money now asked for to the development of the mine?

The CHAIRMAN: I may extend the sphere of my observations with regard to the money which it is proposed that we should obtain to carry on the mine. It probably may arise as a notion in the minds of some that the directors may appropriate a portion of the money to pay off the debentures; now I, as your Chairman, give you my solemn assurance no such thing has been thought of. All the money, with the exception of a small amount to be paid towards the liquidation of the interest on the debentures, and a sum for the secretary and offices, will be applied to the development of the property. (Cheers.)

A SHAREHOLDER: What is the amount of the debenture interest?——The CHAIRMAN: About 750*l.* to June 30 last. As to the expense of the office, we propose giving the sum of 300*l.* or 400*l.* towards it. There has been a great deal of work and expense in connection with telegrams and printing, which have extended over five years.

Mr. G. BATTERS: You owe money to the secretary, who has found us office room and so on.

The CHAIRMAN: Yes; and who has found the means collaterally of carrying on the business up to the present time. I may mention that none of the debentures are in a position to be claimed till the end of this year, and I am in a position to state that if the interest is paid on the debentures we should not have the slightest difficulty in renewing them. They amount to 2000*l.*

A SHAREHOLDER: What is the value of the gold per ounce?——The CHAIRMAN: You may put it at the lowest at 2*l.* 7*s.* 6*d.*; is it not so Mr. Lavington?

The SECRETARY: It is more than that; 2*l.* 16*s.* 2*d.* per ounce has been realised up to the present time.

Mr. G. BATTERS said that no doubt the shareholders would be pleased to hear a few words from Mr. Collett, who was in the room. (Hear, hear)

Mr. W. R. COLLETT, F.R.G.S., said: I shall be much obliged if you will give me a few minutes hearing. I believe that in the present company there is no person who has a more intimate personal acquaintance with the Kapanga Mine than myself. I remember it in its earliest days, when its proprietors produced more than 70,000*l.* of gold with very indifferent machinery. I repeatedly bought stones extracted from the mine, for which I paid about 2*l.* sterling for every pound weight of lode. I did that for private testing whether the results of the mill crushing were in any respect equivalent to those by private assay, and I found the former very deficient. I presume that with the present superior apparatus and knowledge of extraction very little loss is incurred. I am also aware that the lode still exists in its pristine integrity and richness, as exemplified by the splendid blast which took place a day or two previous to the departure of the last mail, when nearly 1 cwt. of stone was brought to surface, which should yield at least 100 ozs. of gold—in fact, a single ton of this quality would be worth at least 5000*l.*, and alone pay a 5 per cent. dividend on your original capital. After a long and tedious time you have succeeded in sinking a most splendid shaft, and now the property has got into good miner like working order. Great results are not obtained without great sacrifices. Hitherto only great sacrifices have been made, but the great results with a little more expenditure are now within your grasp. I trust that the appeal made to you by the Chairman will not be in vain, and that the small additional expenditure required will be found by the present shareholders without an appeal being made to the public. You have a most efficient, painstaking, and experienced manager in Capt. Thomas, on whose judicious supervision every reliance can be placed. You have a directory who are largely personally interested in the speculation, and in whom you have the greatest confidence. A short time ago before the mine was proved the shares commanded a good premium, and now when your shaft is sunk, your levels driven, your winzes deepened, and the auriferous bunches reached the shares are at a very heavy discount. The so-called badness of the times will not account for this. It must arise from the comparative ignorance respecting the value of your property, if the few remarks which have fallen from me have in anywise removed this unfavourable impression they have not been spoken in vain, and I beg to thank you for your kind attention, and to congratulate you on the brilliant prospects now in view. (Cheers.)

The SECRETARY, in reply to an observation, said that Capt Thomas had written to the effect that when the specimens began to yield well, the whole of the lode also began to yield well.

Mr. G. BATTERS: Is there an average of anything like 1 oz. per ton?——The SECRETARY: To the end of June we had crushed 210 tons of quartz, and taking it all through it had yielded 1 oz. 6 dwts. 4 grs. per ton. Since then, in August and September we have crushed 150 tons of stuff, and realised 232 ozs. of gold, showing that the yield is progressing, not alone as far as the return of quartz is concerned, but also as far as the yield is returned.

The CHAIRMAN, in answer to a question, said he had no doubt the directors would take their proportion of the preference shares.

Mr. MACGEORGE said that though he had faults to find with the management, still he believed the shareholders possessed an excellent property, and he for one should take his proportion of the shares.

In the course of a discussion which ensued, Mr. KOCH, Mr. BATTERS, and some other gentlemen, expressed an opinion that it would be well to give the shareholders the option of taking 10 per cent. debentures instead of preference shares, or a portion of one and a portion of the other.

The CHAIRMAN said the directors could have no possible objection to such a course.

With the full concurrence of the board and the unanimous wish of the shareholders, the following words were added to the resolution:—"That the directors be requested to give the shareholders the option of subscribing to the debentures at 10 per cent., such debentures to rank *pari passu* with the present debentures."

The resolution proposed by the CHAIRMAN, with this addition, was then put and carried unanimously. On the motion of Mr. KOCH, a vote of thanks was passed to the Chairman and directors, and the meeting broke up.

EMMA MINING COMPANY.

The sixth ordinary general meeting of shareholders was held, on Tuesday, at the City Terminus Hotel, under the presidency of Mr. M'DOUGALL. The report gave a history of the past legal proceedings by and against the company, and its present position, and stated that, acting under the powers conferred on him by special resolution, Mr. M'Dougall had, with the full approval of the board, given a discharge of company's claims against certain of the original directors, who, he was satisfied (in which opinion the directors and the company's counsel fully join), were not guilty of any fraud, but were themselves imposed upon, and these original directors—Mr. E. Leigh Pemberton, Colonel Stanley, and Mr. Bridges Willyams—upon this view being represented to them, expressed their readiness to make some pecuniary recompense to the company for having as its directors accepted the statement of others without sufficient personal verification. These gentlemen, however, declined to make any such payment, in consequence of the independent proceedings which the original allottees had commenced against them. Over these proceedings the directors had no control. Mr. M'Dougall, therefore, put himself into communication with the allottee committee, and an arrangement was accordingly come to under which upon their receiving a sum of 6500*l.* they withdrew their action against these gentlemen, and this having been done they paid the company a sum of money which, after deducting the above payment to the allottee committee, amounted to 14,775*l.*, and Mr. Pemberton had further given the company his guarantee for any costs not exceeding 2500*l.*, which the company might fail to recover in any future proceedings in America, and Mr. Willyams had further agreed to guarantee the company for any costs, not exceeding 500*l.*, incurred in any proceedings in the English courts, which the company might fail to recover.

Upon these payments the debenture-holders held a lien to the extent of 80,000*l.*, and interest, which, however, had been reduced by payment upon all the present and future property of the company; and any recoveries obtained must, therefore, be first of all applied to the payment of their debentures, after which the shareholders generally (whether debenture-holders or not) would rank in any dividend in respect of their shares. As, however, the debentures were exclusively held by shareholders representing a majority of the company, the practical effect was that any recoveries obtained were in reality divided exclusively among the shareholders themselves, a preference to the extent of 80,000*l.* and interest at 5 per cent. being given to that majority who by subscribing for the debentures had kept the company alive while seeking these recoveries, over the minority who declined to subscribe at all, and were content to leave the company to be wound-up. By means of the payments thus obtained, the board had already been able to repay to the shareholders who subscribed to the debentures the whole amount of 1*l.* per debenture which they subscribed, and they now propose to distribute a further 10*s.* per debenture. The directors had reserved the balance of the money recovered—2700*l.* for the general uses of the company, but even including this the funds remaining at the disposal of the directors only amounted, for the period of three months, to about 2500*l.*

The CHAIRMAN, in moving the adoption of the report, said the company was no longer a mining company, but merely a "lawing company. They were doing their best under the advice of [illegible] able counsel, from one of whom they had had a letter, in which he said that their best course was to abide by the opinion of Mr. Benjamin, as they were responsible to a large number of shareholders. The result showed that the verdict in the action in New York had gone against the company, and the result was that notice of appeal had been given, and the hearing might expected to take place within a week. The argument would take perhaps days, and then their position would be, if the verdict was quashed, that they would be able to take further proceedings in New York, and the money deposited (2[illegible] would be released. If, however, the verdict were affirmed, then they would have the power to appeal or submit to judgment, in which case they would be wound up. As to the action against Mr. Albert Grant, Mr. Maurice Grant, and others, he said they were receiving the advice of able counsel, and that what steps they proposed taking he did not at present think it advisable to make known. They had been able to show some of the original directors that in consequence of their having made sufficient personal verification of the statements of the prospectus they had injured the company very much, and the effect was that when they found they were not going to be charged with fraud they came forward, and paid a certain sum which would enable the board to return the amount subscribed by the debenture holders and a further 50 per cent. They had put themselves in a safe position by asking the debenture holders to defer their claims, in case there should be necessity to ask for further funds to carry on proceedings. If any money was wanted they were in a position to offer to the shareholders a first charge on any recovery made. This being the position of the company, he need only refer to the fact that not only had they no property except chairs and tables at the office, but they had standing against them a judgment by Parkes, obtained for money advanced by him to pay dividends.

In answer to Mr. BATHURST, the CHAIRMAN stated that there was no possibility of the mine ever being recovered, as it had been sold, and all they could look forward to was the money to be recovered by legal proceedings.

The report was then adopted, and the formal business transacted.

CLEDDAU VALLEY SLATE QUARRIES COMPANY.

An extraordinary general meeting of proprietors was held at the offices of the company, Coleman-street, on Tuesday,

Mr. J. N. HARRINGTON in the chair.

The CHAIRMAN having expressed the pleasure he felt in meeting the proprietors of the company, said it would be unnecessary to inform them that the course of conduct the directors proposed to them to authorise was incumbent upon them, owing to the great success that had hitherto attended the development of the quarries that the company possessed. From week to week the directors received reports from their manager at the quarries, all of them of the same tenor, and all showing how thoroughly good the slate-rock was, how easily it could be obtained, and what a demand there was for the slate, not only in the neighbourhood of the quarries, but in the surrounding country. Under these circumstances the directors felt that the time had arrived when a line ought to be drawn between those who had put money into the undertaking when there was a certain amount of risk attached to doing so, and those who should enter the company afterwards, when there would be no [illegible] risk, but a certainty of very large returns, and after consulting with their manager the directors unanimously decided that some change should be made. Before, however, any alteration could be decided upon it became necessary to procure the consent of the vendor of the shares now in the hands of the trustees for the debenture-holders, should not lapse to him. It was simply a legal technicality, but very necessary to settle. The vendor gave his consent, and they were now in a position to deal with these shares as being absolutely the property of the company, without any equitable reversion being on them on the part of the vendor of the property. With a view of satisfying the minds of the share and debenture holders (as the minds of the directors had already been satisfied) that the property was now in such a forward state as to justify the making of a change recommended in the issue of the debentures, he thought could not do better than read the report received that morning from their manager, which was accompanied by the usual fortnightly pay-sheets from the quarries. It was as follows:—

I herewith enclose pay-sheet for the past fortnight, and am glad to inform you that our works are progressing very favourably indeed, and that our new [illegible] so far advanced towards completion as to enable us to cart away slate from the quarries. Several thousand slates have already been sold, and are now being taken away daily, and paid for. The Blue Quarries continue to improve, and we shall now be able to spare more men to remove the corner between the Blue Quarries Nos. 1 and 2, which will enable us to increase our staff of slaters rapidly. We shall daily increase the face of slate rock on which we can work. This I am very glad of, as it will enable us to make sufficient slates to meet at least some of the demand, which I am pleased to say is very pressing, as our slates are much liked; indeed, everyone declares they are quite equal to Penrhyn and other North Wales slates, and there is really no doubt about it. The Green Quarry is turning out first class, and improves wonderfully. Every yard we go in the slate becomes both in quality and size of veins, which widen out in every direction as we go into the hill, and downwards also. Everyone here is pleased with the slates, and declare they are better and more free from flint and injurious metallic ores, and also finer in the grain and texture than those of our near neighbours. I will push on as fast as I can, and hope very soon to be able to place the [illegible] on the right side of the book.—WILLIAM BISHOP.

With this report the manager had sent the pay-sheets, showing the number of men employed and their earnings, and the merchants' bills, and from this it appeared that the total expenditure for the fortnight had been over 80*l.*, and 45 men had been employed in the development of the quarries. But out of that staff of 45 men only six had been engaged in actual slate making, the rest having been employed in what is technically known as "dead work," so that there was only a very small percentage of expenditure in the shape of wages that could be considered productive at present. Of course the object, and indeed the necessity, of the manager would be to increase the staff of productive workmen, diminishing at the same time the number of those employed in the deadwork, and that was what he meant by expressing a hope soon to see the balance on the other side of the book. It was hoped that as the productive [illegible] creased their returns would very soon more than pay the total expenses incurred in the working of the quarries. When the company took possession of the quarries it was found that some of the property had been opened out, and there was a sort of road which would have been utterly impracticable for any large amount of traffic, and the first thing which had to be done was to make a road up the side of the hill or mountain with such gradients as to make it available for the ordinary agricultural carts which the company had to use for the conveyance of the slate from the quarries to the station. He need not say that in making of a road that description it was necessary to make it with great deviations in order to reduce the gradient to the lowest possible percentage. That point had now been arrived at where the road was practically finished. As would have been seen from the manager's report, the slates were now being carted along this road, and they were now in a position of being able to supply the market with the produce of the quarries. During the past six weeks there had been an average of 20 men engaged upon the construction of this road, so that the proprietors would easily understand what a serious expense that work had been, and he was sure they would unanimously the directors felt the greater satisfaction in the completion of the road, and the fact that they could now bring their slates into competition with those from other quarries. Really there was no competition in the matter, for no other quarry could supply the demand which existed for slates; indeed, a merchant had recently informed him that he was obliged to give orders 18 months in advance for slates from Lord Penrhyn's quarries. There could be no doubt as to the satisfactory position of the quarries. Then the directors had to consider what would be the best course to pursue, so that those who had hitherto placed their money into the concern should be placed on a fair footing with those who might enter hereafter, and it was considered better for all concerned that the privilege of a bonus share with each debenture should cease from the first of next month. Some of the largest debenture-holders had been consulted on the matter, and they had quite agreed to the recommendation of the directors, and showing them had at once sent in applications for more debentures, showing that the feeling was one of satisfaction at the position of the company. By the end of month the directors thought there might be somewhere about 5000*l.* of debentures applied for, and with these there would be 2500*l.* worth of shares appropriated to the holders of the debentures, leaving 5000*l.* worth of shares which would remain in the hands of the trustees until all the debentures were redeemed, so that the debenture-holders would have an additional security for the payment of their debentures. In addition to that, so long as the interest on the

was regularly paid, and the instalments paid to the trustees for the redemption of the debentures, the dividends on those shares would be paid to the trustees repaid by them to the company, and so increase the funds available for future division. After inviting comment or inquiry, the Chairman moved, "That this meeting of the shareholders and debenture-holders of the Cleddau Valley Slate Quarries Company (Limited) hereby authorise the directors at their discretion, from time to time, to vary the terms of issue of the debentures still on hand, provided always that the new terms of issue be not more favourable than those granted to the original subscribers."

Mr. W. P. Hawes seconded the motion, which was carried unanimously.

The Chairman mentioned that men from neighbouring collieries frequently made excursions to the company's property on Sundays, and those visits were generally followed by applications for employment at the current rate of wages, showing that these practical men had a good opinion of the quarries.

On the motion of Mr. Hawes, seconded by Mr. Mason, a vote of thanks was passed to the Chairman, and the meeting then terminated.

BEDFORD UNITED MINES.

At a special general meeting of shareholders, held on Monday (Mr. Bailey in the chair), an account of expenditure and receipts, with estimate of liabilities and assets, showing a balance against the adventurers of 731*l.*, was submitted to the meeting, when it was determined to make a call of 2*s.* per share (1200*l.*), thus placing the mine in a sound and healthy position financially. Capt. Goldsworthy (the agent) was present, and fully explained the progress of development of the mine, and his expression of opinion with regard to the future prospects of the concern gave general satisfaction. In consequence of the reduction in the price of copper ore it has become necessary to curtail the underground operations, notwithstanding which there is every reason to believe that the returns will now be such as to meet the monthly expenditure. On a fair computation, even with the low price of copper, the reserves are estimated at 1,000*l.*, which, of course, would be increased by an improvement in the standard; at the same time the most promising points in the mine are being pushed on with all speed. It was determined to commence the registration of the company under the Limited Liability Act, whereby the full extent of the shareholders' liability is known. A vote of thanks to the Chairman concluded the proceedings of a very pleasant meeting.

The following report was read at the meeting:—

Oct. 13.—Since the last general meeting we have, in addition to completing the erection of the new winding-engine, thoroughly repaired the crusher, built a new engine-house, and fixed a new balance-bob at the water wheel; also sunk the new engine, and fixed a new balance-bob at the water wheel; also sunk the engine-shaft 3 ft. below the 138 fm. level, and cased and divided from the 115 to the engine-shaft 3 ft. below the 138 fm. level, and cased and divided from the 115 to the surface. The 138 has been driven east 5 fms. 3 ft. 6 in., and west 5 fms. 4 ft. 6 in. The 115 east has been driven east 7 fms. 2 ft. 6 in., and west 8 fms. 1 ft. 10 in. The 115 west has been driven east 5 fms. 5 ft. 6 in., and west 5 fms. 0 ft. 6 in. The 103 east has been driven east 2 fms. 4 ft. 2 in., and west (including cross-cut) 4 fms. 1 ft. 2 in. The winze sunk in bottom of the 103 fm. level has been driven 4 fms. 5 ft., making a total of 51 fms. 0 ft. 8 in. The lode in the 138 fm. level east has been productive throughout the drivage, and is now worth 18*l.* per fathom. In the same level west the lode is improving, worth 9*l.* per fathom. The lode in the 127 east is producing good saving work. We expect an improvement when this end is extended; it must soon reach the shoot of ore driven through from the level above. The lode in this level west has been unproductive for the last few fms., being that the lode has taken off south much faster than usual, we think the best part of the lode may be standing north, which will be proved by putting in a deep cross-cut. The lode in the 115 east is 3 ft. wide, letting out water freely; this end must in a very short time intersect the shoot of ore sunk through by the winze from the 103, and which held down to within 2 fms. of the back of the level. The lode in the 103 east is 2½ ft. wide, composed of congenial capel, mineral mundic, and ore, worth for the latter 8*l.* per fathom. One stope in the end, west, four in the 115 east and west, and one in the 103 west are worth on average 9*l.* per fathom. In consequence of the unsatisfactory state of the copper market we have suspended a few bargains, including the 115 and 103 west, until a better price for copper can be obtained. We consider our prospects very encouraging, especially in the eastern part of the mine, and judging from the ore in the winze and driven through, we look forward to the 127 and 138 laying open a large quantity of productive and valuable ground. The new engine is working well, and the consumption of coal much decreased.—R. Goldsworthy, William Jeffery.

[For remainder of Meetings see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

The week has presented no very great interest as regards the English iron trade. Working operations are carried on tolerably briskly as some small orders come to hand; occasional large orders when prices are not altogether wanting, and are accepted in the absence of something better. Small orders, it may be added, are more numerous than large ones. Small descriptions of iron are the chief in request in the Haute-Marne; in the Nord on the contrary manufacturers' iron and iron for consumption purposes are principally in demand. Work is being carried on rather actively on Parisian account: prices are maintained there at about 7*l.* 12*s.* per ton. A large contract for rails is expected to be let this month by one of the great French railway companies. The Northern of France Railway Company gave out in the course of September some small orders for its Belgian lines, but these went naturally to Belgian houses. The committee of French forgemasters has just held a quarterly meeting; those present on this occasion were not enabled to report any change in the situation.

The Belgian coal trade winter supplies are being laid in tolerably actively, but the extraction has not acquired any special development on this account. The stocks which have accumulated during the past summer are declining. This is something, but it is not sufficient to satisfy producers, who wish to see prices remain steady. Deliveries are not made at all sluggishly to Paris just present, but boats are procured with some difficulty. The Republic of Uruquay has abolished the import duty hitherto levied on coal entering that State. The profits realised from its collieries in Belgium by the Eschweiler Mining Company amounted to 532,279 marcs against 414,452 marcs in 1875-6.

As regards the French coal trade, it may be observed that attention has been a good deal occupied with politics this week, and a number of consumers have delayed giving out their orders. Nevertheless, the winter is coming on apace, and the activity which was developed recently in the trade for domestic qualities of coal has become more decided; industrial descriptions have not yet regained their normal activity. Prices have been firm, but have remained, nevertheless, at about the same level. From the Nord and the Pas-de-Calais nothing very novel has come to hand; stocks are being reduced, but they cannot be said to be by any means wholly absorbed. Intelligence received from the basin of the Loire is tolerably good coal, coal for heating purposes, and industrial qualities all have all moved off tolerably well. Prices remain the same, but they are supported with more steadiness. The receipts of coal and coalles in 1876 amounted to 718,000 tons; the exports during the year were 207,000 tons.

The Austrian ironmasters being always more or less short of work have been casting longing eyes on the adjudications of the State which for some little time past succeeded each other tolerably briskly. The results of these competitions prove tolerably conclusively that competition depresses prices to an extremely low figure. Some rather considerable quantities of old iron and steel from the State system—such as tyres and springs—have been disposed of this week for cash; the privilege of taking over these old stores was competed for quite as keenly as the supplying of new materials. The general situation of the Belgian iron trade has only varied very slightly, or has scarcely changed at all; work is not very exacting, but it has to be secured by means of concessions. The Council of Ministers is stated to have approved an arrangement with the Minister of Public Works which provides for a reduction of 10 per ton in the rate charged for the conveyance of minerals—iron, coal and coal for any distance exceeding 62½ miles. The reduction will be thankfully received by Belgian industrials.

Blue Tent Gravel Mine.—The Blue Tent Gravel Mining Company made their clean-up for the season a short time since: they expect more money than usual, and expect to increase it largely as soon as they have water, as preparations are being made for more extensive work than ever before. The company are now engaged in laying up their claims, and expect shortly to put off a blast of many kegs of powder. With probably one or two exceptions, this is the most extensive gravel mine in the State. Mr. J. Irving Courtenay, the President of the company, is expected here this week in company with Prof. Price. The mine is owned wholly by an English company, and they have cause to be satisfied with their investment; they have spent an enormous amount of money in opening up the claims, building ditches, reservoirs, &c. A contract was let a few days ago to build a new reservoir, which will cover eight acres of ground. The ditch will be pushed through as fast as possible, so the company will have the use of the water as it is needed. The mine is under the superintendence of Mr. D. T. Hall, one of the most competent men for the position in the State. There is no danger of any leakage or extravagance when Mr. Hughes is in charge, and the company did well in securing the services of so capable a man.—*The Daily Transcript* (Nevada City, Cal.), Sept. 21.

FOREIGN MINES.

St. John del Rey Mining Company (Limited).—Advices received Oct. 1, 1877, ex Mondego (s), dated Morro Velho, Sept. 1:—

Gold Extracted to Date.—The produce extracted during the second division of August, being a period of twelve days, amounts to 15,794·6 oits., or 1820·86 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	6616·0	from	1099 =	6·020
Mineral freed from killas	7319·5	,,	677 =	10·811
Cotesworth mineral	684·5	,,	151 =	4·533
	14,620·0	,,	1927 =	7·587
Re-treatment	1174·6	,,	— =	·608
Total	15,794·6	,,	1927 =	8·195

Advices received Oct. 15, per Elbe (s.), dated Morro Velho, Sept. 18:—

General Operations.—The work of the establishment during the month of August has gone on steadily and satisfactorily. The average daily force has been fairly sufficient, though the attendance of native miners has been irregular, in consequence of the planting season which has just commenced.

The output of mineral shows a surplus of 529 tons beyond the amount embraced in the month's produce, due to the measures taken towards meeting the required supply during the repair of the pumping wheel, fixed for the 28th inst. The supply of water shows no falling off, the quantity at present passing over the works being in excess of that required.

Provisions continue scarce, and consequently the exceptionally high prices still prevail. No increase or cheaper supply can be looked for until the next crops, about February and May next.

The health of the establishment is favourable considering the season of the year, which has been very trying, the average number of patients (mostly bronchial complaints) being larger than usual.

Gold Produce for the Month of August.—The produce extracted during the above period amounts to 43,501·7 oits., or 5015·03 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
From general mineral	21,139·3	from	3150 =	6·710
Mineral freed from killas	18,937·8	,,	1853 =	10·221
	40,077·1	,,	5003 =	8·015
Re-treatment	3424.6	,,	— =	680
Total	43.501·7	,,	5003 =	8·695

Equal 5015·0384 ozs. troy, or 1·0021 oz. troy per ton.

The above shows an improved gold return, due to the increase and better class of mineral derived from sections 235 C and 2 5 B. The quantity of eastern mineral both from the reserves 236 B and sump sections being small, caused by the temporary suspension of sinking and stoping operations during the removal of lode from the south wall and adjoining sections. There is still lode to the west adjacent to the wall, which will be removed at an early date.

Cost and Profit.

The produce for July being	43,501·7 oits.	
Deduct loss melting into bars	238·2 ,,	
	43,263·5, at 7s. 9d. per oit. =	£16,764 12 1
Cost		7,659 6 2
Profit for the month		£ 9,105 5 11

With the larger amount of mine duty—construction and repair cost—and an increase of a half-penny in the exchange, there is but a slight difference in the cost compared with last month.

Mine Department.

Mineral delivered on spalling floors	6196 wagons.
Average number of natives daily	212·18
Average number of borers daily	137·66
Mineral quarried per borer daily	1·85 wagon.

Measurements for the Month of August.

The sump has been sunk vertically	1 ft.	0 in.
Driving section, 217 C	5	9
,, 234 B	2	5
,, 258 D	6	10

Sinking.—The sump force during the greater part of the month was drafted to other sections pending the before-mentioned removal of lode. The amount found necessary to break away was very large, but it has been safely accomplished, the ground fairly secured, and the necessary collar protection completed for future sinking. The general character of the mineral body is without alteration.

Level above Sump and Stope 258 D.—The advance made is small; the pure mineral contents and mixed body of lode with killas on the north wall being of an exceedingly hard nature. The proportion of good mineral in the forebreast has slightly decreased, the intrusive body of killas or horse dividing the lode is again causing a slight contraction. The stope section has yielded well, without any material change to note.

Eastern Driving Under Roof and Stope 236 B.—The quantity of good mineral extracted has been limited. In the level the lode so far opened upon is of small dimensions, and very hard. The stope has been extended to section 236 B, at which point the lode measures 25 ft. of high-grade ore. There has been some delay in completing the shoot in connection with the collar for the delivery of the ore to a lower horizon, in consequence of which the force employed has been small. The above arrangements were completed on the 27th ultimo, since which date the output has been proportionately increased.

Stopes West From Sump 257 C and D.—A large extraction has been made from these two points. In section 257 D the lode remains unchanged. The upper part of 257 C has been suspended pending the extension of the lower part of the stope, its ore bearing portions being greatly mixed with killas and quartz.

256 B.—The class of mineral raised has been varied, the lower part of the stope is in lode of fair average quality. Towards the centre and upper part it is of low grade and much disordered, similar in character to that met with in section 255 B previously to the improvement. A greater extension and depth of stope now be comes necessary before again reaching the improved section of mineral west of same.

Western Sections 235 C and 255 B.—The stoping operations have been on a large scale, the greater bulk of the mineral extracted being of good quality with increased and rich pyritic contents. The western driving maintains its improvement. A few fathoms of extension in this level will give valuable data as to the probability of a continuance of a productive mineral body westward.

B Shaft.—The necessary preparations for sinking have been delayed, the force available for the same being required for the placing of permanent pitwork in lieu of the bucket lifts so long in use.

Gold Extracted to Date.—The produce for the first division of September—a period of eight days—has amounted to 10,735·4 oits., or 1237·6 ozs. troy. It has been derived as follows:—

From general mineral	4687·5 oits.	from 736 tons	= 6·368 oits.	per ton.
Mineral free from killas	4479·3	,, 502	,, = 8·942	,,
Cotesworth mineral	733·6	,, 110	,, = 6·669	,,
	9900·4	1348	7·344	
Re-treatment	835·0	,, —	,, ·618	,,
Total	10,735·4 oits.	from 1348 tons	= 7·962 oits.	per ton.

The above produce, though lower than some of the preceding divisions, is favourable. A large amount of poor mixed lode with killas, though of fair produce, has been treated with the general body of mineral. Measures are being taken to bring about a more perfect separation of the ore. A tramway has been laid the entire length of the floors, which will greatly facilitate the removal of inferior and rejected killas.

Reduction Department.—Concentrating experiments are being daily made as to the possibility of a higher separation of the gold contents. The Mexican arrastra has been kept working steadily with the view of ascertaining the collecting properties of copper amalgam.

The excavation for the new stamps is nearly completed.

Mine Duty.—The mine returns for the first fortnight of September, embracing a period of 13 days, are as follows:—

Average attendance of natives daily	188·61
Average attendance of borers daily	115·54
Wagons of stone delivered on spalling floors	3216
Duty per borer per diem	2·14 wagons.

The output of mineral is large, and of fair average quality. There is no notable change in either the eastern or western sections.

The general work of the establishment has been carried on during the past fortnight with regularity, and fair duty has been done in the several departments. Special measures are now in hand for the speedy and effective repair of the pumping-wheel, which it is proposed to stop for that purpose on the 28th inst.

Heavy and refreshing showers of rain have fallen lately—an unexpected addition to our water supply at this season of the year.

The following telegrams have been received:—

On Sept. 19—"Produce eight days (first division of September), 10,750 oits.; yield, 7·9 oits. per ton."

On Sept. 26—"Profit for the month (August), 9100*l.* All going on well."

On Oct. 2—"Produce eleven days (second division of September), 15,250 oits.; yield, unintelligible."

On Oct. 12—"Produce for month (September), 40,000 oits.; yield, 8·8 oits. per ton. All going on well."

On Oct. 18—"Produce eight days (first division of October), 9000 oits.—3487*l.*; yield, 7·8 oits. per ton. All going on well.

DON PEDRO NORTH DEL REY (Gold).—Report for August: Produce from 1648·66 tons, dry weight, 5279 oits=2243*l.* 11*s.* 6*d.* Cost, including all general expenses, also cost of labour and materials, amounting to 298*l.* 16*s.* 10*d.*, for erection of permanent pumping machinery=2493*l.* 15*s.* 2*d.* The cost exceeds that for last month, principally owing to heavy travelling expenses incurred and the rate of exchange being higher, Telegram from Rio, dated Oct. 10, advised 4000 oits. for the month of August.

JAVALI.—Under date Sept. 5, the manager reports that during the previous month the mill worked 25 days, crushing 2·25 tons, which yielded 453½ ozs of gold, valued at 1225*l.* The expenditure, which included 39*l.* on capital account, had been 920*l.* All was going on well.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, $55,000, from 700 tons of ore (two furnaces); week's produce of refinery, $30,000.

—R. Rickard, Sept. 24: The stope in back of the 400 has much improved since my last; it is widening and lengthening, and the ore is of good quality. The drift from the back of the rise above the 400 has been connected with the stope; all the distance driven was in ore. This makes a total length of ore opened of 100 ft.; it varies in width from 20 to 2 ft. The raise in back of the 400 has been suspended for want of air. The ground in the 200 drift has changed; it is now much softer. We expect to strike ore in this drift shortly, and then sink to communicate with the rise in back of the 400. The 600 west is without change. The winze below the 700, on the quartzite, is down 20 ft.; it is showing a little ore, but not sufficient to value. The winze below the 800, on fissure, is without change. The 90 main drift is in hard limestone, with occasional pockets of irony matter. There is no change in any other part of the mine.

SANTA BARBARA (Gold).—Mr. Hilcke, Pari, Sept. 12: During Aug. 1012 tons of mineral were stamped, yielding 3·352 oits per ton, or a total of 3393 oits. of gold, which, valued at 8*s.* 6*d.* per oit., amounts to 1442*l.* 0*s.* 6*d.* as the estimated value of the produce for August; the cost for the same period was 1107*l.* 10*s.* 5*d.*: thus leaving an estimated profit of 334*l.* 10*s.* 1*d.* The lode operated on during August had shown a small improvement in its productive quality; the stoping was chiefly carried on at No. 4 stope, where the lode was much the same as in the previous month; stoping was also commenced at No 5 stope, south of No. 1 shaft, on a good-looking lode 7 ft. wide. The sinking of No. 1 shaft was postponed until the No. 5 stope had been worked away sufficiently far enough that the shaft might not be injured by the blasting. The stone raised for the month had been less than in July, owing to a number of the borers being temporarily absent at their small farms, where the planting season was on. The quantity of ore raised during the month amounted to 1381 tons, of which 969 tons were rejected as refuse stone, and 1012 tons treated at the stamps. Average quantity of ore raised per borer for the month 29·2 tons.

PITANGUI (Gold).—Mr. Hilke, Pari, Sept. 12: I am pleased to be able to advise that the adit has been extended through the rock formation. On Aug. 20 we hauled, and are now driving through a formation consisting of hard and soft layers of slate coloured killas. The soft layers are worked by picks, but the hard layers require blasting. The sides of this ground stand well, but overhead it slides away and has to be timbered, which makes the driving more laborious. The distance driven during August was 4 fms. 2 ft. 6 in., the end being in, at Aug. 31, 72 fms. 3 ft. I am in hopes that we shall soon meet with the Pigara formation, of which apparently this formation seems to be the hanging wall. N.B.—The Pigara forms the hanging wall of the jacotinga formation, in which the veins of gold run, and it is said that gold has been at times met with in the Pigara formation.

PANULCILLO (Copper).—Mr. J. S. Alexander writes: The company's accounts for the financial year just closed show a net profit of 10,313*l.* 6*s.* 10*d.*, subject, however, to the audit, which is not yet completed.—Mr. F. G. Welch, writing from Panulcillo (Sept. 1) says: The production amounts to nearly 40,000 quintals metrico, at 5½ per cent. Dies-y-ocho holidays will greatly interfere with our production this month. Idle time will be taken advantage of by cleaning the M. V. boiler and putting the engines in good order for starting on the 24th inst.

I.X.L. (Gold and Silver).—Lewis Chalmers, Sept. 24: Enclosed please find foreman's report. We are pushing the engine-shaft down as fast as we can. I assayed some ore from the upper tunnel on Friday, which gave me $800 per ton, but there is no quantity of it. Foreman's report, Sept. 22:—"The cage is now running to the 300 station, the shaft thoroughly repaired, and guides put in. Some of the centre timbers and guides we had to take out this week from the 200 upwards, and replace the same with new timber. The sump on the 300 is now about completed, and is 13 ft. long, 10 ft. wide, and 8 ft. deep. It has taken more time to complete than I expected, on account of the necessary repair of the shaft, and also the water being so troublesome, and the rock tight and hard. The same three shifts of men, three in each shift, had to do all the work in shaft and sump; they have done good work this week. We are now putting a bulk-head in the front of the sump next the shaft with good clay and timbers, so there will be no danger of its ever leaking after the shaft goes down; the sump will be a good one. Everything in and about the mine is running and working well."

CHONTALES.—W. White, Sept. 6: Since my last report I have been able to get timber in for the mines as it has been required for use, consequently I have made a little more progress, and hope to continue in that direction as I advance with the repairs of the different departments of the mines, but I shall still be a little slow until I can get some two or three men more that understand timber ground. The men that were here when the former manager came, they tell me, left this part when the timbering of those mines were for the most part suspended. The progressive works we now have are as follows:—Machinery: This department has been repaired to some extent during the past month, and the San Domingo mill is now more efficient for the treatment of the quartz and the saving of the gold, but the cost of reduction this month is a little heavier on account of the stamps shaft breaking, as the men in the mill had to assist. I have had the water brought in at Estrella to feed the pneumatic stamps, but the stamps itself wants to be taken to pieces before it can be worked, which as yet I have had no time to attend to, but by next mail I hope to give you something about the working of this stamps. We have not done so much with the stone-breaker this month, and the stuff treated has not been so good, which is being passed through the mill separate from the quartz not treated by the stone-breaker, and for the most part the remaining pile of quartz now lying around the mill is in large rocks, and difficult for treatment.—East San Benito Mine: This mine is now in regular order for working, tramroad repaired, and 13 varas driven in the end. The lode has not yet improved, but in stoping it may turn out better, as is often the case in many mines.—Estrella Mine: I have begun here with the men to spill through the run referred to in one of my last letters, but it is slow work for progress, the ground being very heavy about the cross-cut, but they tell me it is firm ground a little beyond the place we have got into; if so, about another week the level may be clear, when I shall immediately try what can be done with the quartz of this mine.—San Sebastian Mine: I enclose section of this mine. We have driven here in the main level 7 varas east, and rose in the new rise, in the back of ditto, 7 varas; this rise is now got into some old workings, also drove the shallow level 6 varas, stoped on the back of the lode 270 cubic varas. Owing to the constant repairs being carried on here in the main level the men have not been able to get fairly to work with the driving of the end. All my repairs and new work in the principal levels are of the best timber, and I calculate will stand eight years without repairs of any note. The quartz raised from the different places in this mine during the month I think, so far as I have yet seen, is about the general average quality of the mines. The quartz treated during the past month is as follows:—200 tons of quartz put through the stone-breaker, which produced 40 ozs. of gold, or 4 dwts. to the ton. Raised from San Benito 30 tons, and from San Sebastian 787 tons, which produced in all 218·30 ozs. of gold, or 53·5ths dwts. per ton; total amount of ore treated, 1017 tons; total yield of gold, 253 ozs.; total average produce to the ton, 5 dwts.; value of the gold obtained, 710*l.*; cost for the month, 125*l.*; which includes 30*l.* charged in the monthly sheet for extraneous work.

SAN PEDRO.—W. Phillips, Sept. 1: In the 165 the cross-cut driving south of west by two men, at $15 per metro, we are are still in what appears to be a stone on the manto. We have driven into this rock about 3·50 metros, and within the last few days have met water coming out of the joints of the rock, and the ground is somewhat whiter and easier for driving; this leads me to suppose that there is more manto in this direction. The end driving round the wall of the manto south of east we have suspended, as we are under the poor ore ground that was in the 150; also here we have come into the hard country rock; therefore, I have no hope of cutting ore in this direction. I have put the two men who were driving here to drive north of west to prove if any of the manto has been heaved in this direction or split off from the main manto. This and the cross-cut driving south of west through the manto of this level, and under the manto in the 135 and 122, to prove if the manto has been divided, I consider to be very important works, and the best calculated to prove the mine in this level. The part of the manto we have driven through is well defined and compact, and mixed with stones of yellow bronce throughout, but not in sufficient quantities to value. The winze in the bottom of the 150 is down to the 165, and in no part have we met with ore in sufficient quantities to value. We shall hole to the cross-cut in a day or two, when we shall at once put in the ladder-way through this winze instead of having it in the shaft. The tribute pitch in the 88 is still producing moderate quantities of rich ore, and leaves a small profit to the tributers and to the mine. The tribute pitches in the 62 and 47 are not very productive, leaving but a scanty living for the tributer and a small profit. The tribute pitch in the side of the old works has been suspended, as it would no longer pay for working. We have driven and sunk in the month 25·60 metros, at an average price of $21·80 per metro. The coming water is now about 2000 gallons daily.—Santa Helena Mine: We have still two men picking ore out of the burrows, which leaves us a very small profit. The other mines are suspended at present. Everything is working well both in and out of the mine.

LANZI (Lead and Copper).—Ores arrived at Swansea:—160 tons assayed 55 per cent. zinc and lead; 159 tons assayed 40 per cent. zinc and lead; 82 tons assayed 36 per cent. zinc and lead.

Lead Mine, J. Boyns, Sept. 27: All the stopes are much the same as last reported. We have places to employ one-third more men where the stuff would not pay without dressing plant. I send you a simple basket of ores. Had we machinery to dress all the ores we have raised since the middle of July the lead mine would have given you a good profit.

Lead Mine, Oct. 1: The men that were in No. 1 stope are in a drive No. 1 to communicate with the lead quarry, and in good paying ground for mineral. Nos. 2 and 3 stopes are both in paying mineral ground. No. 4 bottom stope is in good mineral ground. The following were put to pile last week: Nos. 1 and 2 quality ore, 9¾ tons; No. 3, 46 tons; No. 4, 35 tons.—King Shaft: The lode is just the same for mineral as last reported.

Lead Mine, Oct. 8: No. 1 drive towards the lead quarry is in paying mineral ground. No. 2 back stope is in mineral ground of low quality. No. 4 bottom stope is in good mineral ground. No. 5 sink is in paying mineral ground. No. 6 side stope is in good paying ground for lead and blende. No. 7 bottom and side stope is in paying ground. The following ores were put to pile last week:—Nos. 1 and 2, 7½ tons; No. 3, 45 tons; No. 4, 21 tons. We have not dressed all the ore broken on account of the weather.—King's Lode: The lode is hard for breaking, but improved for mineral. It is very large, composed of different kinds of iron, mixed with sulphur, copper, lead, and blende. We have not yet seen enough of the lode to know its value, but it will take time and money to open it up. I will try and get some of it sampled in three or four weeks; it looks likely to contain the above minerals in large quantities, and to become a good mine to the company.

Lead Mine: We have now about 1000 tons of No. 3 on the mine, and we are increasing the pile every day. This month we shall communicate the lead quarry with the workings below, and the mine will soon be opened so as to enable us to raise more than double the quantity we are now raising—say, 500 tons for crushing and dressing per month. Had the machinery been put up when ordered you would now be receiving dividends, but until something is put up you must continue to lay out money instead of receiving it, or stop. A very moderate sum would have done, and now to delay it is a loss to the company. There are three places where we could get water for dressing the above quantity—first, by sinking a small shaft down in the lower part of the valley; second, by sinking a shaft just under Campiglia, and fixing a little engine to pump it up and convey it in pipes to Lanzi Road; third, by going to San Vicenzo. I shall be glad to see some of the directors out to decide this question. I want to see the ore dressed for market every month, and the mine made a success. We have thousands of pounds in ore piled in the mine, and why not put up the machinery? the outlay would not be large.

MALABAR.—G. B. O'Reilly, Sept. 9: Mine: There is no particular change to notice in the appearance of the banks. The gravel continues very poor in quality, and the difficulties of working it, such as it is, increase rather than diminish, owing to the vast quantity of pipe clay and boulders we have to struggle with and the deficient grade. A change in the quality of the gravel is possible, but I have small hope now of any such taking place, and I consider that the ground has now had a fair and thorough trial, enough to satisfy me that we have little of a favourable nature to look forward to or expect. I think the board should now take these matters into serious consideration, and come to some definite resolution. The clean-up will take place on the 16th or 17th inst., and the gold will go forward on the 20th. Up to date we have got in 440 hours, and by the 16th will have probably increased this to 500 or 520. Owing to the vast accumulation of dead work we cannot, I fear, average more than 400 hours in the month from now; it will be a matter of sheer impossibility to do so.—Water Supply: For the first time in our experience we have had a very small head of water for the past fortnight (only 1000 inches). This is owing to the extreme and unprecedented drought, but the

rainy season now appears to be setting in. The scarcity of water has necessarily prevented us running all the stuff we could have done, and I fear, consequently, that the effect will tell on our approaching clean-up.

LANESTOSA.—Oct. 3: Matienzo: In the 50 metre level, north of Guillermo shaft on the west lode, we have had a small branch of lead ore, but we are now passing through marly shale. The 50 metre level, south of Guillermo shaft, has continued during the past month in stiff siliceous stone, with spots of ore. In the La Cruz deep adit, driving north, the lode holds forth large, and patches of calamine are occasionally met with. The lode in Soldado's winze below La Cruz adit is 4 ft. wide, with a good leader of lead and blende ores on the footwall 1½ ft. wide, and having a most encouraging appearance; its present value is ¼ ton of lead and 2 tons of zinc ores per fathom. The ore raised for the past month is estimated at 2 tons of lead and 7 tons of zinc. Dressing the ores at Matienzo is being proceeded with.

BENSBERG.—C. Craze, Oct. 15: The part of the lode being carried in Victorif shaft is still producing good dressable stuff for lead and blende, but it looks as is we are getting near the south wall here, the lode having dipped north faster than the shaft; we are not surprised at a little change here, as all our best ore ground in the 22 is to the north, and when we get down for the next level we expect to drive west and north to get under it. The part of the lode being carried in the 22 fm. level west is still looking well, worth 1 ton of lead and 2 tons of blende per fathom; this end is opening out good ground for stoping. We are still cutting north behind this end, and have no north wall; the part of lode now being cut through will produce 1 ton of good lead ore and some blende to the fathom. In the cross-cut north at the 22, east of this shaft, we are passing through some very kindly branches of blende, with some spots of lead, and the appearance of the ground here to day leads me to expect a valuable lode in this end soon.

CAPE COPPER.—Capt. Tonkin, August 31: Ookiep: The ground in bottom of the shaft below the 80 continues very difficult for sinking on account of the great influx of water at that point; consequently, we have decided to drive out a 92 instead of a 95 fm level, as we at first intended. The driving will be started from the deepest point, and after the level is extended some distance we shall again deepen the shaft for tip-plat, skip pit, &c. The sinking below the 92 will be a comparatively easy matter after the ends are driven out for some length. The north and south joint in new shaft yields some fine lumps of rich purple ore, but it has not materially altered in size during the month. The ground has a promising appearance, but I am not at present prepared to say whether this new joint is connected with a deposit of ore further east, or is one of the feeders of the main bunch that we are at present operating upon. The 80 east from No. 19 winze is not at present producing much copper, but there is a very rich branch of purple ore in the furthest point of the driving. The 80 south-east from No. 19 winze was unproductive during a part of the month; but it has improved of late, being now worth 2 tons of very high quality ore per fathom. No. 23 winze, which was started near the western boundary of the main bunch at the 80, has now reached a depth of 46 ft. 9 in. The present bottom of this sinking is unproductive, as the ore dips to the east; but the winze is being pushed down with vigour in order to drive out two levels from its bottom—one east, towards the ore ground, and the other west, to effect a communication with the shaft. I have nothing to report respecting the stopes throughout the bottom of the mine, excepting that they continue to yield large quantities of rich copper ore. The ground in the 63 east from No. 13 winze is of the same character as when last reported, and the end produces about the like quantity of ore per fathom—¾ ton. In the eastern part of the 68 we have lately started to drive a cross-cut north, and this place looks very well at present, worth 6 tons per fathom. The two side levels in the 68 are each producing 5 tons of ore per fathom. The stopes throughout the mine are yielding well. All the surface operations are being pushed with vigour, and the returns are kept up to a good standard.

SPECTAKEL.—Capt. Tonkin, Capt. Ninnis, Aug. 25: The winze below the 48 is yielding about 1½ ton of good quality copper ore per fathom, but the place does not present a very promising appearance. The 36 east has intersected the flookan course. The joint produces some good stone of ore, but not enough to pay for stoping. The shaft below old workings is still in hard and poor ground. In the 27 south towards Kelly's shaft we have a little ore in bottom of the driving, while the forebreast is unproductive.

TRIAL MINES.—Capt. Tonkin, Capt. Lanksbury, Aug. 15: The 20 west at Karo-Jusberg is just now yielding a little more copper ore than for some time past, but altogether it does not present a very promising appearance. The cross-cut north from shaft is spotted with copper ore, but the ground is looking very unkindly. ——From bottom of whim shaft at Nababeep we are driving out two levels, one south-east and the other north east. In the first named we have lately cut into a nice bunch of copper ore, but we have not yet opened the ground far enough to judge whether it is of value or not. The 17 east from old shaft is being carried forward in a channel of ground that is congenial for the production of copper ore. The present end yields some very good stones of ore. ——Our prospects at Narcap are not very cheering, but we think it well to continue our explorations at the present depth.——The Trial Mine west of Ookiep is looking much the same as when last reported.

RETURNS FOR AUGUST.—Ookiep, 950 tons of 31 per cent.; Spectakel, 13 tons of 26 per cent.—Bills of Lading Received: 80 tons of ore per Dudlin Castle (s.); 30 tons per Walmer Castle (s.); 310 tons per Raven; 320 tons per Lynwood: and 560 tons per Florence.—Arrivals at Port Nolloth; The Ocean King and Prince Alfred.—Arrivals at Swansea: The Tacna, Marion, and Sir Robert McClure.—Sales: 735 tons on Sept. 25 by public ticketing, at an average of 11s. 9½d. per unit, realising approximately 12,800*l.*; and by private contract on Oct. 1, 375 tons at 12s. 3d. per unit (not yet assayed).

THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY.

Capt. Wm. Clemo, Aug. 9.—Tirito: The stope in front of the engine-shaft, over the Tunnel level, continues without change.—20 fm. level south—The works on the west branch in the back of this level: The end driving south has failed. We have now begun to stope the bottom of this level, which is turning out very fairly. The winze sinking in this place has rather improved in quality in the past week. The timbermen opening the Tunnel level continue to make good headway. The amount opened in the past week was 11 ft. 7 in.: total amount of level opened 46 ft. 3in. I think after next week we shall be able to make much better progress, as the stull is not so heavy at that point as it is in the part we have gone through.

Aug. 16.—Tirito: The stope in front of the engine-shaft, over the Tunnel level, is now finished, having communicated with our old stopes. There is only a thin stull left, which we may take away at some future time. We have now stopped working it, to make a hole through the old works at this place to the surface, to make a better outlet for the exhaust steam from the engine.—20 fm. level south—The works on the west branch at the back of this level: The winze sinking in this place has no change to notice from last week. The stope on this branch has about 5 ft. of fair quality ore. The timbermen opening the Tunnel level did not make such good progress in the past week as formerly, on account of meeting with some very hard rocks, which it was necessary to blast; their last week's driving was 9 ft. 6 in.: total amount now driven through 54 ft. 9 in.

Aug. 23.—Tirito—20 fm. level south, the works on the west branch in the back of this level: The winze sinking below this place has nothing new to mention. The stope on this branch is not producing so well as it did last week. The timbermen opening the Tunnel level are making a little better progress than they were; the last week's drift was 11 ft.: total amount of level opened 65 ft. 9 in. The end still continues very hot; the thermometer now standing at 1·7° in the breast of the end.—Surface: Our costeaning work has been resumed. We have sunk a shaft 27 ft., and found the bed rock. We have now begun to drive from the bottom of this shaft. In the drift we have good indications of being near the back of a lode.

Aug. 30.—Tirito—20 fm. level south, the works on the west branch in the back of this level: The winze sinking below this place is not looking so well as it did. The stope on this branch has entirely failed. The timbermen make good progress in opening the Tunnel level: the last week's drift was 11 ft. 9 in.: total amount of level opened 77 ft. 6 in. I think we shall be able to make better speed now, as it appears to be getting a little better for opening. We are now finding a little of the old timbers, and it is not quite so hot as it was. I hope in two or three weeks we shall get through.—Surface: Our costeaning works have nothing new to report; the indications are good.

Frank W. Breach, Aug. 9.—Surface: We have this week commenced to sink a small shaft on the line of the costeaning, and west of La Soledad, for the purpose of continuing this exploration. Since we know that the south dislocation is not a slide, we here feel daily more convinced of finding ore to the south of it correspond-ing to the ore to the south of the north slide, and which is also merely a dislocation. A glance at the plan of the mine will show that had the tunnel entered the lode to the north-west of the north slide, as it has to the north-west of the south slide, and had the same argument against the finding of ore to the south been applied to the one as to the other slide (and there is no reason why it should not have been), then the magnificent course of ore between the two slides would have remained undiscovered, and its existence denied. In the last letter I received from Mr. J. P. Clemes he coincided in the same opinion, and hence his advice to expend 20,000*l.* to explore the south end of the Tirito Mine. The roasting furnace is now thoroughly warmed, and we are getting through 4 tons in place of 3 tons as formerly per 24 hours, with the same amount of fuel. Should the black ore continue to hold as much sulphur as at present an additional hearth would work, and effect a still further saving of fuel. We are getting together the materials for building another furnace, and we think of making it with five hearths instead of four, as the present one contains.

Aug. 16.—Tirito: Tunnel Level: Considering the nature of the work the men are getting on well in the tunnel; the stuff they are spilling through is still too hot to touch, but we expect that this week they will be through the worst of it. The small prospecting shaft reported last week as being sunk on the line of the costeaning works is not yet down to the solid rock.

Aug. 23.—Tirito: Tunnel Level: The men are now past the worst of the work, although, as you will note from Capt. Clemo's letter, the heat has not yet left the ground. According to our calculations there remains about 32 ft to open, but of this more than 20 ft. will be easy compared to what we have passed through. In order to keep the mill going and the furnace working we are scraping up ore from all places possible, as the little we can obtain from the underground stope and the winze under the 10 is really very little in proportion to our requirement. To keep the furnace going ore is being cheaply selected by tribute from the old waste heaps on the Mina Grande. This ore costs less per ton, and is worth $10 to $15 more for the same quantity than the ore at present standing in the Mina Grande below Tunnel level. How much there is we cannot ascertain. Some of the old miners here stated 5000 cargas, or 750 tons; at any rate, it is at the present time a great assistance to us, and works well by the lixiviation process. In the costeaning works we are down in the shaft to the rock, and have commenced to drive west in very kindly-looking ground; very soft, and precisely similar to that found in various places in and on the cap of the lode; in fact, it is the gossan of the Cornish miner.

Aug. 30.—Tirito: You will note from Capt. Clemo's letter enclosed that the work of opening the tunnel progresses steadily. The measurement he gives as already completed—77 ft. 6 in.—is to last Saturday. This week 12 ft. more will be finished, and although he speaks of two or three weeks more being necessary to conclude the work, I hope to see it ended in less time. The ore we have now been working on under the 10 in the south has now given out, as was to be expected, as it was but a branch from the lode carried out of the course of ore by the dislocation. We are now getting a little ore from the winze in the tunnel sunk on what has been termed the first vein or branch of ore cut in the tunnel; of course it is but little, and we have no expectation of its leading to more, as on the level of the tunnel and over it has been very well proved. This is now the only docile ore that remains until we can free the mine from water.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the market has been less active, but prices are firm. The tendency of the market generally is undoubtedly upwards now, and from time to time in future shares must ascend to a higher level of prices. Shares of iron and coal concerns are flat, Benhars especially depressed at a reduction of 8s. 6d. per share on the week for both old and new shares. Bolckow, Vaughan, A, also 10s. lower, Monkland 4s., and Ebbw Vale 2s. 6d. 'Alltami are at 85s. Andrew Knowles and Sons, 35s. prem. Bilbao, 22. Bolckow, Vaughan, A, 53; ditto B, 34½. Cardiff and Swansea, 23s. 6d. to 25s. Chapel House, 60s. Crown Preserved, 35s. Darlington, 12½ dis. Ebbw Vale, 91½. Great Western, 35s. John Bagnall and Sons, 65s. Llynvi, Tondu, and Ogmore, 7. Monkland, 52s. Nant-y-Glo and Blaina (pref.), 20½. Newport Abercarn, 75s. North of England (Carlton), 30s. Rhondda Merthyr, 12½. Rhymney (new), 6¾. Scottish Australian, 35s. to 40s.; ditto (new), 7s. 6d. to 10s. Sheepbridge (new), 8¼. Skerne, 5¼ to 5¾. South Wales, 5½. Staveley, A, 25½ prem.; ditto, C, 85½. Thorp's Gawber, 65s. Tredegar, A, 13½.

In shares of foreign copper concerns Cape have advanced 20s., and Huntington are 9d. lower. Panulcillo in demand at 5s. advance, as the accounts for the past year show, subject to audit, a net profit of 10,313*l.* Tharsis also 1s. 3d. higher; the second half of the dividend of 20 per cent., declared from the profits of 1876, payable on November 10, amounts to 20s. each on the 10*l.* paid shares, and 14s. on the 7*l.* paid ones, being free of income tax. Panulcillo are at 30s. New Quebrada, 42s. 6d. Rio Tinto 5 per cent., 55½. Yorke Peninsula (ordinary), 4s. to 6s.; ditto (preference), 17s. 6d. In shares of home mines Glasgow Caradon are reduced 2s., and the new shares 1s. The three monthly general meeting of the Combmartin Mine takes place on the 24th inst. The low price Leadhills shares can still be got at in small quantities is a mystery to anyone acquainted with the property—a mine of great known wealth, and rather improving than anything else. Aberdaunant are at 6s. 3d. Bampfylde, 6s. Combmartin, 5s. Denbighshire Consols, 32s. 6d. Derwent, 40s. Glenroy, 17s. 6d. Great West Van, 3s. 9d. Grogwinion, 65s. Great Laxey, 20½, ex quarterly dividend of 8s. per share, and bonus of 2s.; both payable on the 23rd inst. Gunnislake (Clitters), 25s. Killifreth, 3s. 9d. Kingston Consols (preference), 17s. 6d. Holmbush, 35s. Llanrwst, 55s. Medlyn Moor, 40s. Mwyndy, 50s. North Laxey, 13s. Pandora, 22s. 6d. Parys Mountain, 14s. Pennant, 5¼. Prince of Wales, 2s. 6d. to 5s. Roman Gravels, 8¼. Rookhope, 22s. South Condurrow, 8 to 8½. Tankerville, 5¼. Tincroft, 15½. West Combmartin, 3s. 6d. West Tankerville, 15s. West Wye Valley, 50s. Wheal Agar, 77s. 6d. to 80s.

In shares of gold and silver mines, Richmond are again higher—12s. 6d. per share; the run is the same as last week, $55,000. Chontales has not made any profit on the month's working received by this mail: Javali, a profit of 305*l.*; and Santa Barbara, a profit of 334*l.* (estimated). The last named shares are better, at 26s. to 30s. Almada and Tirito are at 5s. to 10s.; Antioquia, 11s. 6d.; Chicago, 22s. 6d.; Eberhardt, 95s.; Emma, 1s. 3d.; Exchequer, 5s.; Flagstaff, 43s. 9d.; Frontino and Bolivia, 60s.; I.X.L., 6s.; Last Chance, 17s. 6d.; New Zealand Kapanga, 22s. 6d.; Port Phillip, 10s.; South Aurora, 4s.; St. John del Rey, 330. Shares of oil concerns continue steady. Uphall are 1s. 3d. higher, and Young's Paraffin 2s. 6d. lower. Dalmeny offered at 8. Runcorn Soap and Alkali, 5¾ dis. Miscellaneous companies' shares still neglected, and no change to note. General Sewage are at 8 dis.; Gloucester Wagon, 19¾; Hopkins, Gilkes, and Co., 8 dis.; Langdale's Chemical, 7s. 3d.; Lawes' Chemical, 7½; Milner's safe, 8; Newcastle Chemical, 43s. 9d.; and Phospho Guano, 10½ to 10¾.

EMMA SILVER MINING COMPANY (Limited).—This is now only nominally a mining company, as the chairman stated at the annual meeting on Tuesday that they had really no mine at all. The company's business seems to consist of trying to get compensation for the loss of the mine, and various lawsuits against parties in England and the United States for their connection with its formation. The original capital of 1,000,000*l.* is at present represented by 2500*l.*, all the directors have at their disposal; so it is to be hoped their lawsuits will be successful beyond anticipation.

SOUTH MOLTON CONSOLS SILVER-LEAD MINE.—This property has been taken up by a new company, which we referred to as likely to be the case some time since. Its prospects appear to be favourably viewed, as there is already a considerable demand for the shares, which have been made of small amount.

CAMBRIAN MINING COMPANY (Limited).—A great many enquiries are being made at present about this concern. It is apparently a speculation that may turn out very well. The capital of 50,000 shares of 2*l.* each will not then be far too large. If the operations at the mines are being conducted with anything like the amount of activity displayed in the sale of the shares a remarkably short time will suffice to show whether or not there is a success to be here equal to the Devon Great Consols.

GORSEDD AND MERLLYN CONSOLS MINING COMPANY (Limited).—This mine, near Holywell, Flintshire, appears to be doing very well. A profit is shown on six months working of nearly 3000*l.*, and the capital is 7000 shares of 2*l.* 10s. each, fully paid. If this rate of profit is maintained for any length of time it will have been a capital investment for the original shareholders.

LOCHORE AND CAPELDRAE CANNEL COAL COMPANY.—The annual meeting was held at Edinburgh, on Wednesday, when Mr. Henry Aitkin, coalmaster, Falkirk, chairman of the company, presided. The Chairman said the operations of the company during the year had been restricted almost entirely to the working of the new mine at Capeldrae, where cannel had been got such as few collieries in the country could exhibit, in respect at least of thickness and quality combined; and if it had continued as in the early months of the year they would have been receiving a dividend. Their operations at Lochore had been interrupted by water, and they were doing almost nothing at present. They expected by the spring to take the water out and the coal that yet remained. The directors proposed that, instead of a committee of investigation being appointed independent of the board, four gentlemen might be appointed to carry on the investigation and remain on the board. Some discussion afterwards took place, which resulted in the report being adopted. A resolution was, however, afterwards carried unanimously as to the expediency of increasing the number of directors, and adjourning the meeting for that purpose, the new members, when appointed, being empowered to investigate into the affairs of the company and report to the shareholders. Mr. Gavin Paul, coalmaster, Wishaw, a retiring director, was re-elected.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Capital. Per share.	Paid up.	Dividends. Rate per cent. per annum. Previous.	Last.	Description of shares. COAL, IRON, STEEL.	Last price.
£10	£3	£ 8½	£ 6½	Arniston Coal (Limited)	8
10	10	6	6	Benhar Coal (Limited)	7
10	10	6	6	Ditto	7
100	50	18s 9d†	1.4s 6d†	Bolckow, Vaughan, and Co. (Lim.)	A. 53
10	10	10	10	Cairntable Gas Coal (Limited)	8½
10	10	nil	—	Chillington Iron (Limited)	70s.
32	29	nil	nil	Ebbw Vale Steel, Iron, and Coal (Lim.)	9½
10	6	nil	nil	Fife Coal (Limited)	70s.
10	10	nil	nil	Glasgow Port Washington Iron & Coal (L)	35s.
10	10	—	—	Ditto Prepaid	3 s.
10	10	—	—	Lochore and Capledrae (Limited)	50s.
10	10	nil	3	Marbella Iron Ore (Limited)	56s.
10	10	nil	nil	Monkland Iron and Coal (Limited)	52s.
10	10	5	4	Ditto Guaranteed Preference	5
100	100	nil	nil	Nant-y-Glo & Blaina Ironworks pref. (L)	21
6	6	nil	nil	Omoa and Cleland Iron & Coal (L & Red.)	29s. 6d.
1	1	17½	15	Scottish Australian Mining (Limited)	40s.
1	5s.	17½	15	Ditto New	8s. 9d.
Stock	100	nil	nil	Shotts Iron	91
				COPPER, SULPHUR, TIN.	
4	4	—	—	Canadian Copper and Sulphur (Lim.)	5s.
10	7	40	40	Cape Copper (Limited)	36
1	1	15	7½	Glasgow Caradon Copper Mining (Lim.)	21s.
1	15s.	15	7½	Ditto New	15s.
10	9¾	nil	nil	Huntington Copper and Sulphur (Lim.)	28s. 3d.
25s.	23s.	—	—	Kanunda Mining (Limited)	6l.
4	4	—	—	Panulcillo Copper (Limited)	30s.
10	10	6	6	Rio Tinto (Limited)	72s. 6d.
20	20	7	7	Ditto, 7 per cent. Mortgage Bonds	14½
100	100	5	5	Do. 5 p.ct. Mor. Deb. (Sp. Con. Bds.)	53⅛
10	10	nil	nil	Russia Copper (Limited)	40s.
10	10	22½	20	Tharsis Copper and Sulphur (Limited)	22/16s 3d
10	7	22½	20	Ditto New	15/8s. 9d
1	1	—	—	Yorke Peninsula Mining (Limited)	5s.
1	1	—	—	Ditto, 15 per cent. Guaranteed Pref.	17s. 6d.
				GOLD, SILVER.	
1	1	—	—	Australian Mines Investment (Limited)	8s. 9d.
5	5	7s. 6d†	7s. 6d†	Richmond Mining (Limited)	6
				OIL.	
10	7	6	6	Dalmeny Oil (Limited)	8
1	1	7½	25	Oakback Oil (Limited)	46s. 6d.
1	5s.	—	25	Ditto	12s.
10	10	2½	7½	Uphall Mineral Oil (Limited) "A"	9l. 11s. 3d
10	10	—	—	Ditto "B" Deferred	10
10	10	—	—	West Calder Oil (Limited)	75s.
10	8½	9	17½	Young's Paraffin Light & Mineral Oil (L).	14⅞
				MISCELLANEOUS.	
50	25	5	6	London and Glasgow Engineering & Iron Shipbuilding (Limited)	25⅛
20	14½	—	—	Peruvian Nitrate (Limited)	10
7	7	20	10†	Phospho Guano (Limited)	10/16s 3d
10	10	6	6	Scottish Wagon (Limited)	11⅛
10	4	6	6	Ditto New	8s. 6d.

† Interim. ‖ Per share.

Last day for this account, Oct. 26; settling day, Oct. 30.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

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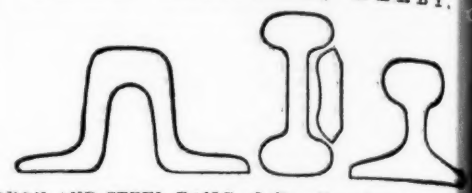

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NICHOLLS MATHEWS, AND CO.

ENGINEERS, BRASS AND IRON FOUNDERS, BOILER MAKERS AND SMITHS.

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CORNISH PUMPING, WINDING, AND STAMPING ENGINES; CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK, SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVIL, and other WHEELS, of any meter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means.

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SECONDHAND MINING MACHINERY, in good condition, always on hand at moderate prices.

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MINING AND CIVIL ENGINEER,

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ATTERCLIFFE, SHEFFIELD,

DEVOTE THEIR EXCLUSIVE ATTENTION TO THE MANUFACTURE OF

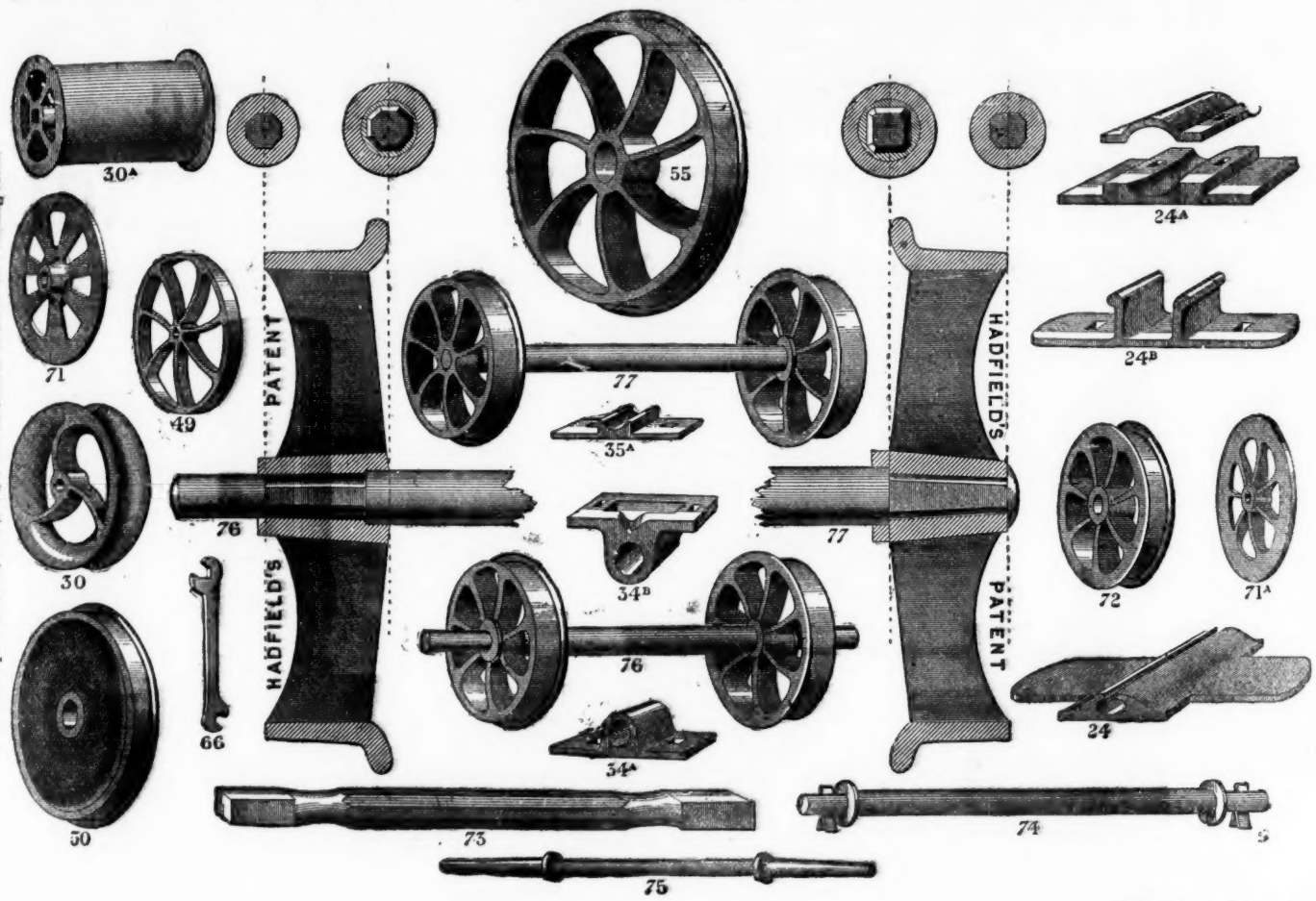
CRUCIBLE STEEL CASTINGS, for Engineering and Machine Purposes,

AND ARE THE SOLE MAKERS OF

HADFIELD'S CRUCIBLE STEEL WHEELS.

One of our departments is specially adapted for the manufacture of these Wheels (as shown below), for Collieries, Ironstone Mines, Slate Quarries, Ironworks, Lead Mines, &c., &c. We have made, and are now making, many HUNDRED THOUSANDS; and having Patented a New Method of Fitting Wheels upon axles, being cheap, effective, and expeditious, we can execute orders entrusted to us with promptitude, our capacity in this department alone being equal to about 2000 wheels per week.

N.B.—Prices per Set of Wheels and Axles, fitted complete, forwarded on receipt of diameter of wheel on tread, depth of tread, real gauge, and thickness of axles and rolling load.



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HADFIELD'S PATENT METHOD OF FITTING WHEELS UPON AXLES.

The advantages of the above system are that the Wheels being forced upon a Taper Square-ended Axle, by Machinery, and then riveted (the machine securing truth), it is impossible that they can come loose or get within gauge. They are very cheaply fitted on, and run exceedingly true.

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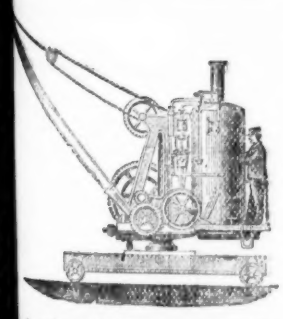

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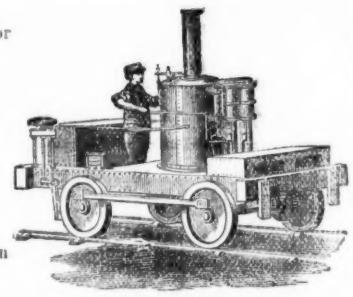

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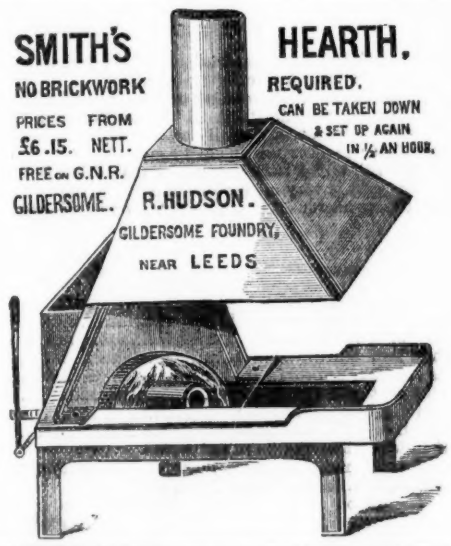

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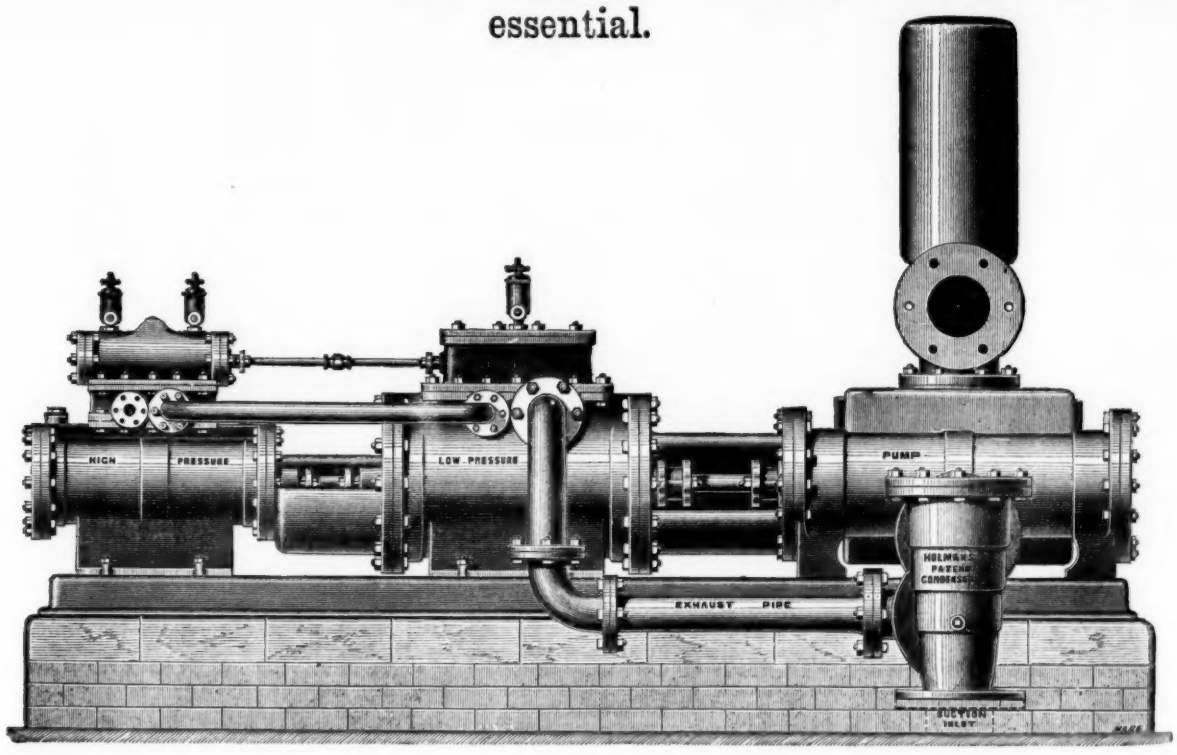
THE "SPECIAL" DIRECT-ACTING COMPOUND STEAM PUMPING ENGINE

For use in Mines, Water Works, Sewage Works, and all purposes where Economy of Fuel is essential.



After several years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once

THE SIMPLEST AND MOST CERTAIN IN ACTION.

The illustration shows an extension of the principle of this Pump to a Compound Steam Pumping Engine, by which the economical advantages resulting from the expansion and condensation of steam are very simply and effectively obtained. The steam after leaving the high-pressure cylinder is received into and expanded in the low-pressure cylinder, and is thus used twice over before being exhausted into the condenser or atmosphere. The Engine combines simplicity, certainty of action, great compactness, fewness of parts, and consequent reduction in wear and tear.

Several thousands of the "Special" Steam Pumping Engines, with high-pressure cylinders only, are in use in British and Foreign Mines, Water Works, &c.,—and for confined situations, or where Engines of a comparatively small size only are necessary, they will still meet all requirements—but their application will be very largely increased, since it has been found practicable to embrace the important features of expanding and condensing the steam, so that increased power may be obtained, and the consumption of fuel greatly economised.

THE "SPECIAL" DIRECT-ACTING COMPOUND STEAM PUMPING ENGINE is the most simple appliance for deep mine draining and general purposes of pumping ever practically developed, and the first cost is very moderate compared with the method of raising water from great depths by a series of 40 to 50 fathom lifts. No costly engine-houses or massive foundations, no repetition of plunger lifts, ponderous connecting rods, or complication of pit-work are required, while they allow a clear shaft for hauling purposes.

SIZES AND PARTICULARS.

Diameter of High-pressure Cylinder.....In.	8	8	8	10	10	10	10	12	12	12	12	14	14	14	
Ditto of Low-pressure Cylinder .....In.	14	14	14	18	18	18	18	21	21	21	21	24	24	24	
Ditto of Water Cylinder .....In.	4	5	6	5	6	7	8	6	7	8	10	7	8	10	
Length of stroke .....In.	24	24	24	24	24	24	24	24	24	24	24	36	36	36	
Gallons per hour approximate	3900	6100	8800	6100	8800	12,000	15,650	8,800	12,000	15,650	24,450	12,000	15,650	24,450	35,2
Diameter Suction and Delivery .....In.	3	3½	4	3½	4	5	6	4	5	6	8	5	6	8	
Diameter High-pressure Steam Inlet.....In.	1¼	1¼	1¼	1¼	1¼	1¼	1¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	
Diameter Low-pressure Steam Exhaust.....In.	1½	1½	1½	1¾	1¾	1¾	1¾	2½	2½	2½	2½	2½	2½	2½	
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder ..... Non-condensing...	360	330	160	360	250	184	140	360	264	202	130	360	275	175	
Ditto ditto ditto—with Holman's Condenser...	480	307	213	480	333	245	187	480	352	269	173	480	367	234	
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	600	417	306	335	600	440	337	216	600	459	293	

CONTINUED.

Diameter of High-pressure Cylinder .....In.	16	16	16	16	18	18	18	18	21	21	21	24	24	24	30
Ditto of Low-pressure Cylinder .....In.	28	28	28	28	32	32	32	32	36	36	36	42	42	42	52
Ditto of Water Cylinder .....In.	8	10	12	14	8	10	12	14	10	12	14	10	12	14	12
Length of stroke .....In.	36	36	36	36	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate	15,650	24,450	35,225	47,950	13,650	24,450	35,225	47,950	24,450	35,225	47,950	24,450	35,225	47,050	35,225
Diameter Suction and Delivery .....In.	6	8	9	10	6	8	9	10	8	9	10	8	9	10	9
Diameter High-pressure Steam Inlet .....In.	2½	2½	2½	2½	3	3	3	3	3½	3½	3½	4	4	4	5½
Diameter Low-pressure Steam Exhaust.....In.	3	2	3	3	3½	3½	3½	3½	4	4	4	5	5	5	6½
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder ..... Non-condensing..	360	230	160	118	456	292	202	149	397	276	202	518	360	264	582
Ditto ditto ditto—with Holman's Condenser...	480	307	213	154	603	389	269	198	528	363	269	691	480	352	750
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	191	750	486	337	248	660	450	337	864	600	440	937

PRICES GIVEN ON RECEIPT OF REQUIREMENTS.

Any number of these Engines can be placed side by side, to work in conjunction or separately as desired, thereby multiplying the work of one Pump to any extent.

NORTH OF ENGLAND HOUSE ... ... TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... ... ... TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT, Mon.; and Oxford Buildings, SWANSEA.

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SYKES WORKS, SHEFFIELD, and 118, Cannon-street, LONDON, E.C.,

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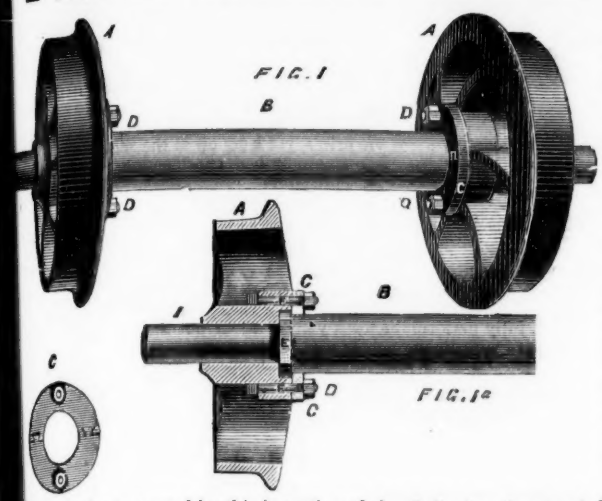
CRUCIBLE CAST STEEL CASTINGS,

HAVE PLEASURE IN CALLING THE ATTENTION OF THE MINING WORLD TO THEIR

Patent Method of Fitting up Cast Steel Wheels and Axles.



Figs. 1 and 1a show a longitudinal view and plan of a pair of corf wheels and axles fitted up for outside bearings. A A, are the wheels; B, is the axle; C C, the washers; D D, the bolts; E, the collar on axle B; and F, the recessed boss in the wheel.

The wheel is cast with a recessed boss in the inside, made to any shape, corresponding in shape and depth with a collar formed on the axle. Figs. 2 and 2a show a longitudinal view and plan of a pair of corf wheels fitted up for inside bearings. The washers are secured to the boss of the wheel in outside bearings by bolts and nuts, and in inside bearings by set screws.

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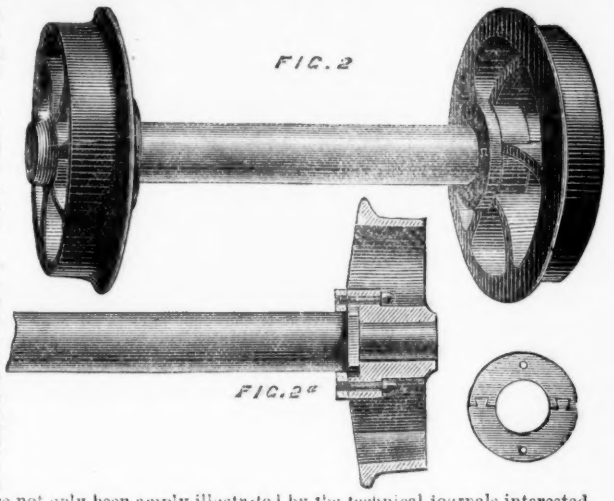

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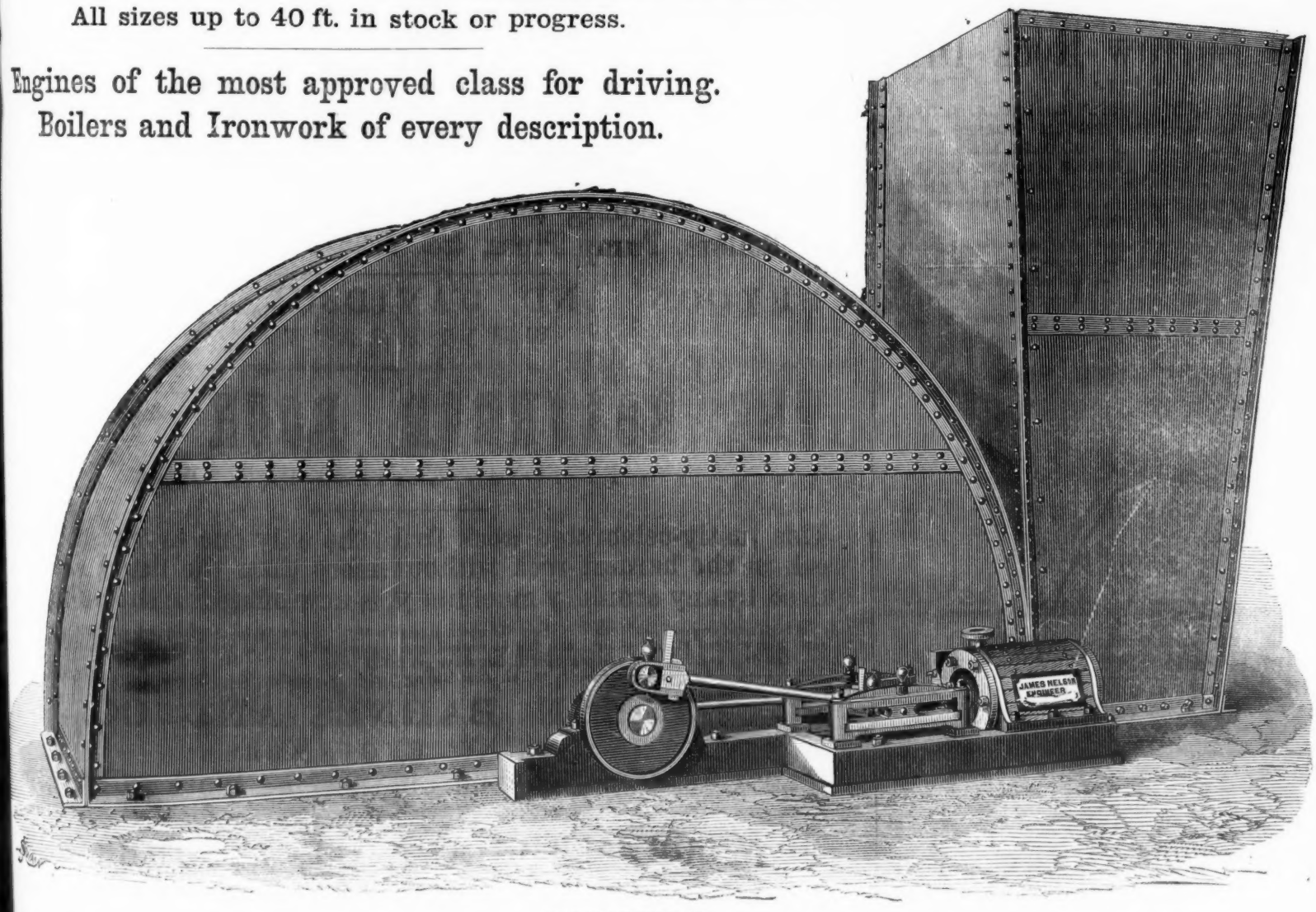

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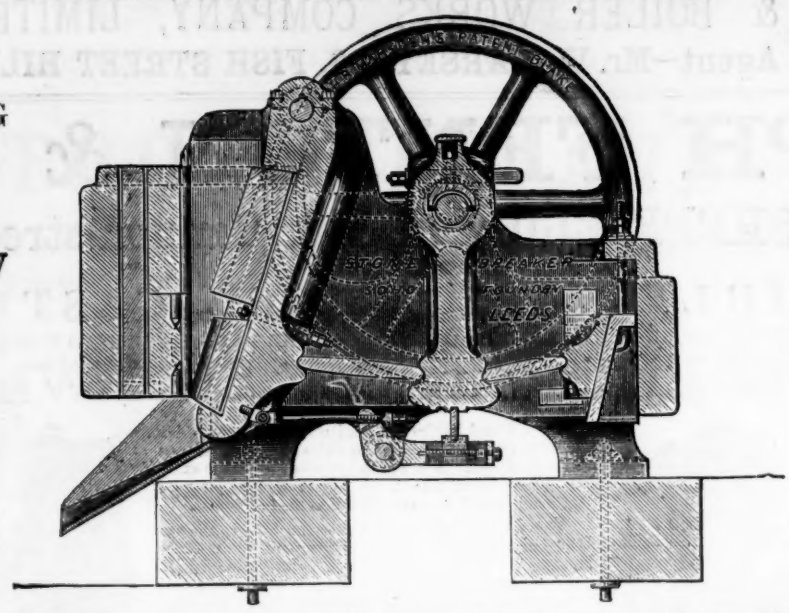

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